

**Table D-A-1**  
**Nitrogen Oxides (NOx) RBLC Search - Combustion Turbines Firing Natural Gas (With Duct Burning)**  
**Invenergy, LLC - Allegheny County Energy Center Project**

RBLCD	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
LA-0313	ST. CHARLES POWER STATION	8/31/2016	SCPS Combined Cycle Unit 1A	Natural Gas	3625	MMBTU/hr		Selective Catalytic Reduction (SCR) with Dry Low NOx Burners (DLNB) during normal operations; Good Combustion Practices during Startup/Shutdown operations.	26.91	LB/H	HOURLY MAXIMUM	109.51	T/YR	ANNUAL MAXIMUM	15	PPM@15% O2	4-HOUR AVERAGE
MI-0423	INDECK NILES, LLC	1/4/2017	FGCTGHRSG (2 Combined Cycle CTGs with HRSGs)	Natural gas	8322	MMBTU/H	There are 2 combined cycle natural gas-fired combustion turbine generators (CTGs) with heat recovery steam generators (HRSG) identified as EUCTGHRSG1 & EUCTGHRSG2 in the flexible group FGCTGHRSG. The total hours for startup and shutdown for each train shall not exceed 500 hours per 12-month rolling time period.  The throughput capacity is 3421 MMBTU/H for each turbine, and 740 MMBTU/H for each duct burner for a combined throughput of 4161 MMBTU/H or 8322 MMBTU/H for both trains.	SCR with DLNB (selective catalytic reduction with dry low NOx burners)	38.1	LB/H	24-H ROLLING AVERAGE	286	LB/H	OPERATING HR DURING STARTUP OR SHUTDOWN	0		
MI-0424	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	12/5/2016	FGCTGHRSG (2 Combined cycle CTGs with HRSGs; EUCTGHRSG10 & EUCTGHRSG11)	Natural gas	554	MMBTU/H, each	Two combined cycle natural gas fired combustion turbine generators (CTGs) with heat recovery steam generators (HRSG) (EUCTGHRSG10 & EUCTGHRSG11 in FGCTGHRSG). The total hours for both units combined for startup and shutdown shall not exceed 635 hours per 12-month rolling time period.	Selective catalytic reduction with dry low NOx burners (SCR with DLNB).	3	PPM AT 15% O2	24-H ROLLING AVG. EACH EU	8.18	LB/H	24-H ROLLING AVG. EACH EU	0		
MI-0424	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	12/5/2016	FGCTGHRSG (2 combined cycle CTGs with HRSGs; EUCTGHRSG10 & EUCTGHRSG11)	Natural gas	554	MMBTU/H, EACH	Two combined cycle natural gas-fired combustion turbine generators (CTGs) with heat recovery steam generators (HRSG) (EUCTGHRSG10 & EUCTGHRSG11 in FGCTGHRSG). The total hours for both units combined for startup and shutdown shall not exceed 635 hours per 12-month rolling time period.  This process group is to identify emission limits during startup and shutdown.	Selective catalytic reduction with dry low NOx burners (SCR with DLNB).	43.7	LB/H	OPERATING HOUR DURING STARTUP; EACH EU	43.1	LB/H	OPERATING HOUR DURING SHUTDOWN; EACH EU	0		
*MI-0431	INDECK NILES LLC	6/26/2018	FGCTGHRSG (2 Combined Cycle CTG with HRSGs); FG-TURB/DBI-3 (3)	Natural gas	3421	MMBTU/H	Two combined-cycle natural gas-fired combustion turbine generators (CTGs) with Heat Recovery Steam Generators (HRSG) (EUCTGHRSG1 & EUCTGHRSG2). The total hours for startup and shutdown for each train shall not exceed 500 hours per 12-month rolling time period.	SCR with DLNB (Selective Catalytic Reduction with Dry Low NOx Burners)	2	PPM	AT 15%O2; 24-HR ROLL AVG	38.1	LB/H	24-HR ROLL AVG.	0		
*MI-0432	NEW COVERT GENERATING FACILITY	7/30/2018	FG-TURB/DBI-3 (3) combined cycle combustion turbine and heat recovery steam generator (HRSG) trains.	Natural gas	1230	MW	Three (3) combined-cycle combustion turbine (CT) / heat recovery steam generator (HRSG) trains. Each CT is a natural gas fired Mitsubishi model 501G, equipped with dry low NOx combustor and inlet air evaporative cooling. Each HRSG includes a natural gas fired duct burner with a 256 MMBTU/hr heat input capacity and a dry low NOx burner.	Good combustion practices, DLN burners and SCR.	2	PPMVD	AT 15%O2; EACH INDIV. CT-HRSG TRAIN	22.4	LB/H	EACH INDIV. CT-HRSG TRAIN; 24-H ROLL AVG	0		
*MI-0432	NEW COVERT GENERATING FACILITY	7/30/2018	FG-TURB/DBI-3--Startup/Shutdown Operations	Natural gas	1230	MW	Three (3) combined-cycle combustion turbine (CT) / heat recovery steam generator (HRSG) trains. Each CT is a natural gas fired Mitsubishi model 501G, equipped with dry low NOx combustor and inlet air evaporative cooling. Each HRSG includes a natural gas fired duct burner with a 256 MMBTU/hr heat input capacity and a dry low NOx burner.  This scenario identifies the emission limits applicable during startup and shutdown operations.	Good combustion practices, DLN burners and SCR.	249	LB/H	EACH CT-HRSG TRAIN; STARTUP /SHUTDOWN	0			0		
*MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUCTGHRSG (South Plant): A combined cycle natural gas-fired combustion turbine generator with heat recovery steam generator.	Natural gas	500	MW	A combined-cycle natural gas-fired combustion turbine generator (CTG) with heat recovery steam generator (HRSG) in a 1x1 configuration with a steam turbine generator (STG) for a nominal 500 MW electricity production. The CTG is a H-class turbine with a rating of 3,080 MMBTU/H (HHV). The HRSG is equipped with a natural gas-fired duct burner rated at 755 MMBTU/H (HHV) at ISO conditions to provide heat for additional steam production. The HRSG is not capable of operating independently from the CTG. The CTG/HRSG is equipped with dry low NOx burner (DLNB), SCR, and an oxidation catalyst.	SCR with DLNB (Selective catalytic reduction with dry low NOx burners).	2	PPMV	AT 15%O2; 24-HR ROLL AVG NOT S.S.	29.7	LB/H	24-H ROLL AVG NOT S.S.	0		
*MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUCTGHRSG (North Plant): A combined-cycle natural gas-fired combustion turbine generator with heat recovery steam generator.	Natural gas	500	MW	A combined-cycle natural gas-fired combustion turbine generator (CTG) with heat recovery steam generator (HRSG) in a 1x1 configuration with a steam turbine generator (STG) for a nominal 500 MW electricity production. The CTG is a H-class turbine with a rating of 3,080 MMBTU/hr (HHV). The HRSG is equipped with a natural gas-fired duct burner rated at 755 MMBTU/hr (HHV) at ISO conditions to provide heat for additional steam production. The HRSG is not capable of operating independently from the CTG. The CTG/HRSG is equipped with dry low NOx burner (DLNB), SCR, and an oxidation catalyst.	SCR with DLNB (Selective catalytic reduction with Dry Low NOx burners).	2	PPMVD	AT 15%O2; 24-H ROLL AVG; NOT S.S.	29.7	LB/H	24-H ROLL AVG; NOT STARTUP/SHUT DOWN (SS)	0		
*MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	FGCTGHRSG (EUCTGHRSG1 & EUCTGHRSG2)	Natural gas	0		Plant nominal 1,150 MW electricity production. Turbines are each rated at 3,658 MMBTU/H and HRSG duct burners are each rated at 800 MMBTU/H.  The HRSGs are not capable of operating independently from the CTGs.	SCR with DLNB (Selective catalytic reduction with dry low NOx burners).	2	PPMVD	AT 15%O2; 24-H ROLL AVG; EACH UNIT;	28.9	LB/H	24-H ROLL AVG; EACH UNIT; NOT S.S.	0		
*MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	FGCTGHRSG (EUCTGHRSG1 & EUCTGHRSG2)--Startup & Shutdown	Natural gas	0		This section is the startup and shutdown emission limits for FGCTGHRSG.  Two 3,658 MMBTU/H natural gas-fired combustion turbine generators (CTGs) coupled with heat recovery steam generators (HRSGs). The HRSGs are equipped with natural gas-fired duct burners rated at 800 MMBTU/H to provide heat for additional steam production. The HRSGs are not capable of operating independently from the CTGs.	SCR with DLNB (Selective catalytic reduction with dry low NOx burners).	262.4	LB/H	EACH UNIT; OPERATING HOUR DURING S.S.	0			0		
TN-0162	JOHNSONVILLE COGENERATION	4/19/2016	Natural Gas-Fired Combustion Turbine with HRSG	Natural Gas	1339	MMBTU/hr	Turbine throughput is 1019.7 MMBTU/hr when burning natural gas and 1083.7 MMBTU/hr when burning No. 2 oil. Duct burner throughput is 319.3 MMBTU/hr. Duct burner firing will occur during natural gas combustion only.	Good combustion design and practices, selective catalytic reduction (SCR).		PPMVD @ 15% O2	30 UNIT- OPERATING-DAY MOVING AVERAGE.		PPMVD @ 15% O2	15 UNIT- OPERATING-DAY MOVING AVERAGE	0		
TX-0819	GAINES COUNTY POWER PLANT	4/28/2017	Combined Cycle Turbine with Heat Recovery Steam Generator, fired Duct Burners, and Steam Turbine Generator COMBUSTION TURBINE GENERATOR WITH DUCT-FIRED HEAT RECOVERY STEAM GENERATORS (3)	NATURAL GAS	426	MW	Four Siemens SGT6-5000F5 natural gas fired combustion turbines with HRSGs and Steam Turbine Generators	Selective Catalytic Reduction (SCR) and Dry Low NOx burners	2	PPMVD	15% O2 3-H AVG	0			0		
*VA-0325	GREENSVILLE POWER STATION	6/17/2016	Combined Cycle Turbine with Heat Recovery Steam Generator	natural gas	3227	MMBTU/HR	3227 MMBTU/HR CT with 500 MMBTU/HR Duct Burner, 3 on 1 configuration.	SCR	2	PPMVD	1 HR AVG	0			0		

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**Nitrogen Oxides (NOx) RBLC Search - Combustion Turbines Firing Natural Gas (With Duct Burning)**  
**Invenery, LLC - Allegheny County Energy Center Project**

RBL CID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
*WV-0029	HARRISON COUNTY POWER PLANT	3/27/2018	GE 7HA.02 Turbine	Natural Gas	3496.2	mmBtu/hr	Nominal 640 mWe All emission limits steady-state and include 1000 mmBtu/hr Duct Burner in operation Short Term startup and shutdown limits in lb/event given in permit.	Dry-Low NOx Burners, SCR	32.9	LB/HR	1-HOUR AVERAGE	156.2	TONS/YEAR		2	PPM	
AK-0071	INTERNATIONAL STATION POWER PLANT	12/20/2010	GE LM6000PF-25 Turbines (4)	Natural Gas	59900	hp ISO	Turbine-duct burner pairs exhaust through common stack	Selective Catalytic Reduction and Dry Low NOx Combustion	5	ppmvd	4-HOUR AVERAGE	0			0		
AK-0073	INTERNATIONAL STATION POWER PLANT	12/20/2010	Fuel Combustion	Natural Gas	59900	HP	EU IDs 5-8 Combined Cycle Natural Gas-fired Combustion Turbines rated at 59,900 hp (44.7 MW)	Turbines EU IDs 5 through 8 shall be equipped with Selective Catalytic Reduction and Dry Low NOx (SCR and DLN) combustors. SCR is a post-combustion gas treatment technique for reduction of nitric oxide (NO) and nitrogen dioxide (NO2) in the turbine exhaust stream to molecular nitrogen, water, and oxygen. This process is accomplished by using ammonia (NH3) as a reducing agent, and is injected into the flue gas upstream of the catalyst bed. By lowering the activation energy of the NOx decomposition removal efficiency of 80 to 90 percent are achievable. DLN combustors utilize multistage premix combustors where the air and fuel is mixed at a lean fuel to air ratio. The excess air in the lean mixture acts as a heat sink, which lowers peak combustion temperatures and also ensures a more homogeneous mixture, both resulting in greatly reduced NOx formation rates. DLN can reduce emissions by about 60%.	5	ppmvd	4-HOUR	0			0		
CA-1144	BLYTHE ENERGY PROJECT II	4/25/2007	2 COMBUSTION TURBINES	NATURAL GAS	170	MW	EACH TURBINE WILL PRODUCE 170 MW	SELECTIVE CATALYTIC REDUCTION	2	ppmvd	AT 15% O2, 3-HR AVG	14.8	lb/hr		0		
CA-1177	OTAY MESA ENERGY CENTER LLC	7/22/2009	Gas turbine combined cycle	Natural gas	171.7	MW		SCR	2	ppmvd	1 HOUR	0			0		
CA-1178	APPLIED ENERGY LLC	3/20/2009	Gas turbine combined cycle	Natural gas	0		Source test results: 1.45 ppm NOx @ 15% O2 or 2.19 lb/hr ~0.22 ppm VOC @15%O2 or ~0.12 lb/hr	SCR	2	ppmvd	1 HOUR	0			0		
CA-1191	VICTORVILLE 2 HYBRID POWER PROJECT	3/11/2010	COMBUSTION TURBINE #2 (NORMAL OPERATION, WITH DUCT BURNING)	NATURAL GAS	154	MW	154 MW Combined Cycle Combustion Turbine Generator	SCR	2	ppmvd	@15% O2, 1-HR AVG (W/ DUCT BURNING)	14.6	PPMVD	1-HR AVG (W/ DUCT BURNING)	0		
CA-1191	VICTORVILLE 2 HYBRID POWER PROJECT	3/11/2010	COMBUSTION TURBINE #1 (NORMAL OPERATION, WITH DUCT BURNING)	NATURAL GAS	154	MW	154 MW Combined Cycle Combustion Turbine Generator	SCR	2	ppmvd	@15% O2, 1-HR AVG (W/ DUCT BURNING)	14.6	lb/hr	1-HR AVG (W/ DUCT BURNING)	0		
CA-1192	AVENAL ENERGY PROJECT	6/21/2011	COMBUSTION TURBINE #1 (NORMAL OPERATION, WITH DUCT BURNING)	NATURAL GAS	180	MW		SCR, DRY LOW NOX COMBUSTORS	2	ppmvd	@15% O2, 1-HR AVG	17.2	lb/hr	1-HR AVG	0		
CA-1192	AVENAL ENERGY PROJECT	6/21/2011	COMBUSTION TURBINE #2 (NORMAL OPERATION, WITH DUCT BURNING)	NATURAL GAS	180	MW		SCR, DRY LOW NOX COMBUSTORS	2	ppmvd	@15% O2, 1-HR AVG	17.2	lb/hr	1-HR AVG	0		
CA-1195	ELK HILLS POWER LLC	1/12/2006	COMBUSTION TURBINE GENERATOR, 2 units (Normal Operation)	NATURAL GAS	166	MW	Each CTG system will generate 166 MW under design ambient conditions with steam power augmentation from the duct burners, and 153 MW without steam augmentation.	SCR OR SCONOX, DRY LOW NOX COMBUSTORS	2.5	ppmvd	@15% O2, 1-HR AVG	15.8	lb/hr	1-HR AVG	0		
CA-1209	HIGH DESERT POWER PROJECT	3/11/2010	COMBUSTION TURBINE GENERATORS (NORMAL OPERATION)	NATURAL GAS	190	MW	THREE (3) COMBUSTION TURBINE GENERATORS AT 190 MW EACH AND EQUIPPED WITH A 160 MMBTU/HR DUCT BURNER AND HRSG	DRY LOW NOX BURNERS (LNB), SELECTIVE CATALYTIC REDUCTION (SCR)	2.5	ppmvd	@15% O2, 1-HR AVG	18	lb/hr	1-HR AVG	0		
CA-1211	COLUSA GENERATING STATION	3/11/2011	COMBUSTION TURBINES (NORMAL OPERATION)	NATURAL GAS	172	MW	TWO (2) NATURAL GAS FIRED TURBINES AT 172 MW EACH. BOTH TURBINES EQUIPPED WITH A 688 MMBTU/HR DUCT BURNER AND HRSG.	DRY LOW NOX BURNERS (LNB), SELECTIVE CATALYTIC REDUCTION (SCR)	2	ppmvd	@15% O2, 1-HR ROLLING AVG	19.6	lb/hr	1-HR ROLLING AVG	0		
CA-1212	PALMDALE HYBRID POWER PROJECT	10/18/2011	COMBUSTION TURBINES (NORMAL OPERATION)	NATURAL GAS	154	MW	TWO NATURAL GAS-FIRED COMBUSTION TURBINE-GENERATORS (CTGS) RATED AT 154 MEGAWATT (MW, GROSS) EACH, TWO HEAT RECOVERY STEAM GENERATORS (HRSG), ONE STEAM TURBINE GENERATOR (STG) RATED AT 267 MW, AND 251 ACRES OF PARABOLIC SOLAR-THERMAL COLLECTORS WITH ASSOCIATED HEAT-TRANSFER EQUIPMENT	DRY LOW NOX (DLN) COMBUSTORS, SELECTIVE CATALYTIC REDUCTION (SCR)	2	ppmvd	@15% O2, 1-HR AVG	0		0			
CA-1213	MOUNTAINVIEW POWER COMPANY LLC	4/21/2006	COMBUSTION TURBINES (COMBUSTOR TUNING PERIODS)	NATURAL GAS	175.7	MW EA.	FOUR (4) NATURAL GAS FIRED COMBINED CYCLE COMBUSTION TURBINES, EACH EQUIPPED WITH A 135 MMBTU/HR DUCT BURNER AND HRSG, AND EACH RATED AT 175.7 MW	1991 MMBTU/HR DRY LOW NOX COMBUSTORS, SELECTIVE CATALYTIC REDUCTION (SCR)	80	lb/hr	1-HR AVG (COMBUSTOR TUNING PERIODS)	0		0			
CO-0056	ROCKY MOUNTAIN ENERGY CENTER, LLC	5/2/2006	NATURAL-GAS FIRED, COMBINED-CYCLE TURBINE	NATURAL GAS	300	MW	ONE NEW COMBINED-CYCLE TURBINE IS BEING ADDED TO AN EXISTING FACILITY.	LOW NOX BURNERS AND SCR	3	ppmvd	HOURLY MAX	0.013	LB/MMBTU	SEE NOTE	3	PPM @ 15% O2	
*CO-0073	PUEBLO AIRPORT GENERATING STATION	7/22/2010	Four combined cycle combustion turbines	natural gas	373	mmBtu/hr	Three GE, LMS6000 PF, natural gas-fired, combined cycle CTG, rated at 373 MMBtu per hour each, based on HHV and one (1) HRSG each with no Duct Burners	Dry Low NOx (DLN) Combustor and Selective Catalytic Reduction (SCR)	3	ppmvd	1-HR AVE	4.1	lb/hr	30-DAY ROLLING AVE	0		

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**Invenery, LLC - Allegheny County Energy Center Project**

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARAD EMISSION LIMIT	UNIT	AVG TIME CONDITION	
CT-0151	KLEEN ENERGY SYSTEMS, LLC	2/25/2008	SIEMENS SGT6-5000F COMBUSTION TURBINE #1 AND #2 (NATURAL GAS FIRED) WITH 445 MMBTU/HR NATURAL GAS DUCT BURNER	NATURAL GAS		2.1	MMCF/H	Four GE 7FA combined cycle turbines, dry low NOx burners and selective catalytic reduction. These limits are for each of the 4 turbines individually, while operating with the duct burners on. This permit is a modification to RBLCL OH-0252 to remove hourly restrictions on duct burners.		15.5	lb/hr			W/OUT DUCT BURNER		2	PPM @ 15% O2	1-HR BLOCK
*DE-0023	NRG ENERGY CENTER DOVER	10/31/2012	UNIT 2- KDJ	Natural Gas	655	MMBTU/H	500 MMBTU/hr Gas Turbine (Model: GE LM6000) rated at 52 MW and 155 MMBTU/hr Heat Recovery Steam Generator rated at 18 MW. The unit is required to operate a certified CEMS and COMS.	Selective Catalytic Reduction	5.76	lb/hr	1 HR AVERAGE	2.5	PPMVD	@ 15% OXYGEN BASED ON A 1 HOUR AVERAGE		0		
DE-0024	GARRISON ENERGY CENTER	1/30/2013	Unit 1	Natural Gas	2260	million BTUs		Low NOx Combustors, Selective Catalytic Reduction	2	ppmvd	HOURLY AS BASELOAD ON NAT. GAS	6	PPMVD	3 HOUR AVERAGE ON ULSD OIL		0		
FL-0263	FPL TURKEY POINT POWER PLANT	2/8/2005	170 MW COMBUSTION TURBINE, 4 UNITS	NATURAL GAS	170	MW	GENERATING CAPACITY: EACH OF THE FOUR GAS TURBINES HAS A NOMINAL GENERATING CAPACITY OF 170 MW FOR GAS FIRING (180 MW FOR OIL FIRING). EACH OF THE FOUR HEAT RECOVERY STEAM GENERATORS (HRSGS) PROVIDES STEAM TO THE SINGLE STEAM TURBINE ELECTRICAL GENERATOR, WHICH HAS A NOMINAL CAPACITY OF 470 MW. THE TOTAL NOMINAL GENERATING CAPACITY OF THE 4-ON-1 COMBINED CYCLE UNIT IS 1150 MW.	NOX EMISSIONS WILL BE REDUCED WITH DRY LOW-NOX (DLN) COMBUSTION TECHNOLOGY FOR GAS FIRING AND WATER INJECTION FOR OIL FIRING. IN COMBINATION WITH THESE NOX CONTROLS, A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM FURTHER REDUC	2	ppmvd	24-HR (ALL MODES OF OPERATION)	2	PPMVD	STACK TEST NORMAL OPERATION	2	PPM @ 15% O2	STACK TEST (CT & DUCT BURNER)	
FL-0265	HINES POWER BLOCK 4	6/8/2005	COMBINED CYCLE TURBINE	NATURAL GAS	530	MW	FUELS: EACH GAS TURBINE WILL FIRE NATURAL GAS AS THE PRIMARY FUEL AND ULTRA LOW SULFUR (0.0015% SULFUR) DISTILLATE OIL AS A RESTRICTED ALTERNATE FUEL. EMISSIONS OF ALL POLLUTANTS INCREASE WITH THE FIRING OF OIL. THE APPLICANT REQUESTS 500 HOURS PER YEAR PER GAS TURBINE (OR EQUIVALENT) FOR OIL FIRING.	SCR	2.5	ppmvd	NATURAL GAS	10	PPMVD	OIL	2.5	PPM @ 15% O2		
FL-0285	PROGRESS BARTOW POWER PLANT	1/26/2007	COMBINED CYCLE COMBUSTION TURBINE SYSTEM (4-ON-1)	NATURAL GAS	1972	MMBTU/H	1876 MMBTU/HR WHEN FIRING DISTILLATE FUEL OIL. THE SYSTEM NOMINAL CAPACITY 1280 MW. EACH UNIT NOMINAL CAPACITY 215 MW (ISO) WITH DUCT-FIRED HEAT RECOVERY STEAM GENERATOR.	WATER INJECTION	15	ppmvd	30-DAYS BASIS - NATURAL GAS	42	PPMVD	30-DAYS BASIS - DISTILLATE FUEL OIL		0		
FL-0286	FPL WEST COUNTY ENERGY CENTER	1/10/2007	COMBINED CYCLE COMBUSTION GAS TURBINES - 6 UNITS	NATURAL GAS	2333	MMBTU/H	EACH COMBINED CYCLE UNIT SYSTEM (TWO & 3-ON-1 & 3-ON-1 & 3-ON-1) WILL CONSIST OF: THREE NOMINAL 250 MEGAWATT MODEL 501G GAS TURBINE-ELECTRICAL GENERATOR SETS WITH EVAPORATIVE INLET COOLING SYSTEMS, THREE SUPPLEMENTARY-FIRED HEAT RECOVERY STEAM GENERATORS (HRSGs) WITH SCR REACTORS, ONE NOMINAL 428 MMBTU/HOUR (LHV) GAS-FIRED DUCT BURNER LOCATED WITHIN EACH OF THE THREE HRSGs, THREE 149 FEET EXHAUST STACKS, ONE 26 CELL MECHANICAL DRAFT COOLING TOWER, AND A COMMON NOMINAL 500 MW STEAM-ELECTRICAL GENERATOR.	DRY LOW NOX AND SCR WATER INJECTION	2	ppmvd	24-HR (GAS)	8	PPMVD	24-HR (OIL)		0		
FL-0303	FPL WEST COUNTY ENERGY CENTER UNIT 3	7/30/2008	THREE NOMINAL 250 MW CTG (EACH) WITH SUPPLEMENTARY-FIRED HRSG	NATURAL GAS	2333	MMBTU/H	COMBINED CYCLE UNIT 3 WILL CONSIST OF: THREE NOMINAL 250 MW COMBUSTION TURBINE-ELECTRICAL GENERATORS (CTG) WITH EVAPORATIVE INLET COOLING SYSTEMS; THREE SUPPLEMENTARY-FIRED HEAT RECOVERY STEAM GENERATORS (HRSG) WITH SELECTIVE CATALYTIC REDUCTION (SCR) REACTORS AND A COMMON NOMINAL 500 MW STEAM-ELECTRICAL GENERATOR.	DRY LOW NOX SELECTIVE CATALYST REDUCTION	2	ppmvd	24 HOURS	8	PPMVD	24 HOURS		0		
FL-0304	CANE ISLAND POWER PARK	9/8/2008	300 MW COMBINED CYCLE COMBUSTION TURBINE	NATURAL GAS	1860	MMBTU/H		SCR	2	ppmvd	24-HR	0				0		
FL-0337	POLK POWER STATION	10/14/2012	Combine cycle power block (4 on 1)	natural gas	1160	MW	Basis for the emission standard is either NSPS Subpart KKKK or Department BACT determinations. The BACT emission standards for NOX while operating in combined cycle are more stringent than the corresponding Subpart KKKK emissions standards of 15 and 42 ppmvd @15% O2 on a 30-day rolling average for natural gas and fuel oil, respectively.	SCR/DLN	2	ppmvd	24-HR BLOCK (GAS) CEMS	8	PPMVD	24-HR BLOCK (OIL) CEMS		0		
GA-0138	LIVE OAKS POWER PLANT	4/8/2010	COMBINED CYCLE COMBUSTION TURBINE - ELECTRIC GENERATING PLANT	NATURAL GAS	600	MW		DRY LOW NOx BURNERS, SELECTIVE CATALYTIC REDUCTION	2.5	ppmvd	3 HOUR AVERAGE/CONDITION 2.11	87	T/YR	12 CONSECUTIVE MONTH AVERAGE/CONDITION 2		0		
ID-0018	LANGLEY GULCH POWER PLANT	6/25/2010	COMBUSTION TURBINE, COMBINED CYCLE W/ DUCT BURNER	NATURAL GAS (ONLY)	2375.28	MMBTU/H	SIEMENS SGT6-5000F COMBUSTION TURBINE (NGCT, CCGT) FOR ELECTRICAL GENERATION; NOMINAL 269 MW AND 2.1466 MMSCF/HR.	SELECTIVE CATALYTIC REDUCTION (SCR), DRY LOW NOX (DLN), GOOD COMBUSTION PRACTICES (GCP)	2	ppmvd	3-HR ROLLING / 15% O2	96	PPMVD	3-HR ROLLING / 15% O2 DURING SUSDL		0		
*IL-0112	NELSON ENERGY CENTER	12/28/2010	Electric Generation Facility	Natural Gas	220	MW each	Two combined cycle combustion turbines followed by HRSGs with capability for supplemental fuel firing in HRSG for each combustion turbine using duct burners.	SCR and Low-NOx Combustors	4.5	ppmvd	HOURLY AVG EXCEPT DURING SSM OR TUNING	0				0		
*IN-0158	ST. JOSEPH ENERGY CENTER, LLC	12/3/2012	FOUR (4) NATURAL GAS COMBINED CYCLE COMBUSTION TURBINES	NATURAL GAS	2300	MMBTU/H	EACH TURBINE IS EQUIPPED WITH DRY LOW NOX BURNERS, NATURAL GAS FIRED DUCT BURNERS, AND A HEAT RECOVERY STEAM GENERATOR IDENTIFIED AS HRSG#. NOX EMISSIONS CONTROLLED BY SELECTIVE CATALYTIC REDUCTION SYSTEMS (SCR#) ALONG WITH CO AND VOC EMISSIONS CONTROLLED BY OXIDATION CATALYST SYSTEMS (CAT#) IN EACH TURBINE. EACH STACK HAS CONTINUOUS EMISSIONS MONITORS FOR NOX AND CO. COMBINED NOMIAL POWER OUTPUT IS 1,350 MW.	SELECTIVE CATALYTIC REDUCTION AND DRY LOW NOX BURNERS	2	ppmvd	3 HOURS	0				0		
LA-0136	PLAQUEMINE COGENERATION FACILITY	7/23/2008	(4) GAS TURBINES/DUCT BURNERS	NATURAL GAS	2876	MMBTU/H	VISUAL INSPECTION FOR OPACITY ON A WEEKLY BASIS, STACK TESTS FOR PM, NOX, SO2, OPACITY, CO EMISSION POINTS GT-500, -600, -700, -800.	DRY LOW NOX BURNERS, SELECTIVE CATALYTIC REDUCTION	240	lb/hr	HOURLY MAXIMUM - NORMAL OPERATION	480	lb/hr	HOURLY MAXIMUM - STARTUPS / SHUTDOWNS	5	PPMVD @ 15% O2	ANNUAL AVERAGE	
LA-0192	CRESCENT CITY POWER	6/6/2005	GAS TURBINES - 187 MW (2)		2006	MMBTU/H		LOW NOX BURNERS AND SELECTIVE CATALYTIC REDUCTION (SCR) ADD-ON CONTROLS	21.8	lb/hr	HOURLY MAXIMUM	95.5	T/YR	ANNUAL MAXIMUM		3	PPM	ANNUAL AVERAGE
LA-0224	ARSENAL HILL POWER PLANT	3/20/2008	TWO COMBINED CYCLE GAS TURBINES	NATURAL GAS	2110	MMBTU/H	CTG-1 TURBINE-DUCT BURNER (EQ7012) CTG-2 TURBINE-DUCT BURNER(EQ7013)	LOW NOX TURBINES, DUCT BURNERS COMBINED WITH SCR	30.15	lb/hr	MAX	0			4	PPMVD@15% O2	ANNUAL AVERAGE	

**Table D-A-1  
Nitrogen Oxides (NOx) RBLC Search - Combustion Turbines Firing Natural Gas (With Duct Burning)  
Invenergy, LLC - Allegheny County Energy Center Project**

RBLCD	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
LA-0257	SABINE PASS LNG TERMINAL	12/6/2011	Combined Cycle Refrigeration Compressor Turbines (8)	natural gas	286	MMBTU/H	GE LM2500-G4	water injection	22.94	lb/hr	HOURLY MAXIMUM	0			20	PPMV	AT 15% O2
*MD-0041	CPV ST. CHARLES	4/23/2014	2 COMBINED-CYCLE COMBUSTION TURBINES	NATURAL GAS	725	MEGAWATT	TWO GENERAL ELECTRIC (GE) F-CLASS ADVANCED COMBINED CYCLE COMBUSTION TURBINES (CTS) WITH A NOMINAL GENERATING CAPACITY OF 725 MW, COUPLED WITH A HEAT RECOVERY STEAM GENERATOR (HRSG) EQUIPPED WITH DUCT BURNERS, DRY LOW-NOX BURNERS, SCR, OXIDATION CATALYST	DRY LOW-NOX COMBUSTOR DESIGN AND SELECTIVE CATALYTIC REDUCTION (SCR)	2	ppmvd	3-HOUR BLOCK AVERAGE, EXCLUDING SU/SO	21.7	lb/hr	3-HOUR BLOCK AVERAGE, EXCLUDING SU/SO	0		
*MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014	2 COMBINED CYCLE COMBUSTION TURBINES WITH DUCT FIRING	NATURAL GAS	1090	MW	TWO MITSUBISHI & ISOQUI G&ISOQUI MODEL COMBUSTION TURBINE GENERATORS (CTS) WITH A NOMINAL GENERATING CAPACITY OF 270 MW CAPACITY EACH, COUPLED WITH A HEAT RECOVERY STEAM GENERATOR (HRSG) EQUIPPED WITH DUCT BURNERS, DRY LOW-NOX COMBUSTORS, SELECTIVE CATALYTIC REDUCTION (SCR), OXIDATION CATALYST	USE OF DRY LOW-NOX COMBUSTOR TURBINE DESIGN, USE OF PIPELINE QUALITY NATURAL GAS DURING NORMAL OPERATION AND SCR SYSTEM	2	ppmvd	3-HOUR BLOCK AVERAGE, EXCLUDING SU/SO	870	LB/EVENT	FOR ALL STARTUPS	0		
MI-0366	BERRIEN ENERGY, LLC	4/13/2005	3 COMBUSTION TURBINES AND DUCT BURNERS	NATURAL GAS	1584	MMBTU/H	EACH TURBINE IS EQUIPPED WITH A HEAT RECOVERY STEAM GENERATOR (HRSG). EACH HRSG IS EQUIPPED WITH A NATURAL GAS FIRED DUCT BURNER (650 MMBTU/H). TOTAL NOMINAL PLANT GENERATING CAPACITY WITHOUT DUCT FIRING IS 800 MW. A MAX OUTPUT OF 1100 MW THROUGH SUPPLEMENTAL FIRING OF HRSGS.	DRY LOW NOX BURNERS AND SELECTIVE CATALYTIC REDUCTION.	2.5	ppmvd	24-HOUR ROLLING AVG EACH HOUR	239.4	T/YR	ALL TURBINES COMBINED	2.5	PPM @ 15% O2	
*MI-0402	SUMPTER POWER PLANT	11/17/2011	Combined cycle combustion turbine w/ HRSG	Natural gas	130	MW electrical output	This is a combined-cycle combustion turbine with a non-fired heat recovery steam generator (HRSG).	Low NOx burners	9	ppmvd	24-HR ROLLING AVERAGE	36.9	lb/hr	24-HR ROLLING AVERAGE	0		
*MI-0405	MIDLAND COGENERATION VENTURE	4/23/2013	Natural gas fueled combined cycle combustion turbine generators (CTG) with HRSG	Natural gas	2237	MMBTU/H	Equipment is permitted as following flexible group (FG): FG-CTG1-2: Two natural gas fired CTGs with each turbine containing a heat recovery steam generator (HRSG) to operate in combined cycle. The two CTGs (with HRSG) are connected to one steam turbine generator. Each CTG is equipped with a dry low NOx (DLN) burner and a selective catalytic reduction (SCR) system.	Dry low NOx (DLN) burner and selective catalytic reduction (SCR) system.	2	ppmvd	EACH CTG; 24-H ROLLING AVG.	16.2	lb/hr	EACH CTG; 24-H ROLLING AVG.	0		
*MI-0405	MIDLAND COGENERATION VENTURE	4/23/2013	Natural gas fueled combined cycle combustion turbine generators (CTG) with HRSG and duct burner (DB)	Natural gas	2486	MMBTU/H	This process is permitted in a flexible group format, identified in the permit as FG-CTG/DB1-2 and is for two natural gas fired CTGs with each turbine containing a heat recovery steam generator (HRSG) to operate in combined cycle. The two CTGs (with HRSG) are connected to one steam turbine generator. Each CTG is equipped with a dry low NOx (DLN) burner and a selective catalytic reduction (SCR) system. Additionally, the HRSG is operating with a natural gas fired duct burner for supplemental firing.	Dry low NOx (DLN) burners and selective catalytic reduction (SCR) system.	2	ppmvd	24-H ROLLING AVG	18	lb/hr	24-H ROLLING AVG	0		
*MI-0410	THETFORD GENERATING STATION	7/25/2013	FGCCA or FGCCB-4 nat. gas fired CTG w/ DB for HRSG	natural gas	2587	MMBTU/H heat input, each CTG	The throughput is 2,486 MMBTU/H for each CTG/DB. Natural gas fired CTG with DB for HRSG; 4 total. Technology A (4 total) is 2587 MMBTU/H design heat input each CTG. Technology B (4 total) is 2688 MMBTU/H design heat input each CTG.	Low NOx burners and selective catalytic reduction.	3	ppmvd	24-H ROLLING AVERAGE	760	lb/hr	1-H AVERAGE	0		
MN-0071	FAIRBAULT ENERGY PARK	6/5/2007	COMBINED CYCLE COMBUSTION TURBINE W/DUCT BURNER	NATURAL GAS	1758	MMBTU/H	COMBUSTION TURBINE PERMITTED TO USE NG & NO. 2 OIL. DUCT BURNER ALSO AUTHORIZED TO COMBUST LIQUID BIOFUEL. Each of these units have a natural gas-fired heat recovery steam generator and a natural gas-fired duct burner. Each CT combusts natural gas as the primary fuel and very low-sulfur No. 2 fuel oil as a backup fuel. The use of fuel oil is limited to 1,200 hours per year and only during the months of November through March, and is listed as a separate process. These units are listed as a combined source (all three units) for each type of fuel.	DRY LOW NOX COMBUSTION FOR NG; WATER INJECTION FOR NO.2 OIL; SCR W/INZ INJECTION IN HRSG FOR BOTH NG & NO. 2 OIL.	3	ppmvd	3-HR. AVG CTG & DB NAT. GAS OR DB NO OPE	6	PPMVD	3-HR. AVG CTG OIL, DB ANY FUEL OR NO OPE	4.5	PPMVD	3-HR. AVG CTG NG, DB OIL
NC-0101	FORSYTH ENERGY PLANT	9/29/2005	TURBINE, COMBINED CYCLE, NATURAL GAS, (3)	NATURAL GAS	1844.3	MMBTU/H		DRY LOW-NOX COMBUSTORS AND SELECTIVE CATALYTIC REDUCTION (SCR)	2.5	ppmvd	24 HOUR ROLLING AVERAGE, FIRST 500 HOURS	3	PPMVD	24 HOUR ROLLING AVERAGE, AFTER 500 HOURS	3	PPM @ 15% O2	
NJ-0074	WEST DEPTFORD ENERGY	5/6/2009	TURBINE, COMBINED CYCLE	NATURAL GAS	17298	MMFT3/YR		SELECTIVE CATALYTIC REDUCTION (SCR) AND WATER INJECTION	0.01	LB/MMBTU	3 HR ROLLING AVERAGE	2	PPMVD	3 HR ROLLING AVERAGE	0		
*NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITH DUCT BURNER - SIEMENS	Natural Gas	33691	MMCF/FT PER YEAR	Natural Gas Usage <= 33,691 MMBTU/3yr per 365 consecutive day period, rolling one day basis (per two Siemens turbines and two associated duct burners) The heat input rate of the Siemens turbine will be 2,356 MMBtu/hr (HHV) with a 62.1 duct burner MMBtu/hr (HHV).	Selective Catalytic Reduction System (SCR)	2	ppmvd	3-HR. ROLLING AVE BASED ON 1-HR BLOCK AVE	19.5	lb/hr	AVERAGE OF THREE ONE HOUR TESTS	0		
*NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITH DUCT BURNER - GENERAL ELECTRIC	Natural gas	33691	MMCF/year.	Natural Gas Usage <= 33,691 MMBTU/3yr per 365 consecutive day period, rolling one day basis (per two turbines and two duct burners) The heat input rate of each General Electric combustion each turbine will be 2,312 MMBtu/hr (HHV) with a 164.4 MMBtu/hr duct burner	Selective Catalytic Reduction Systems (SCR) and Dry Low Nox	2	ppmvd	3-HR BLOCK AVERAGE BASED ON 1-HR BLOCK	18.1	lb/hr	AVERAGE OF THREE ONE HOUR TESTS	0		
*NJ-0082	WEST DEPTFORD ENERGY STATION	7/18/2014	Combined Cycle Combustion Turbine without Duct Burner	Natural Gas	20282	MMCF/YR	This is a 427 MW Siemens Combined Cycle Turbine with duct burner Heat Input rate of the turbine = 2276 MMBtu/hr (HHV) Heat Input rate of the Duct burner= 777 MMBtu/hr (HHV)	Selective Catalytic Reduction System (SCR) and use of natural gas a clean burning fuel	2	ppmvd	3-HR ROLLING AVE BASED ON 1-HR BLOCK	17.33	lb/hr	3-HR ROLLING AVE BASED ON 1-HR BLOCK	0		
*NJ-0082	WEST DEPTFORD ENERGY STATION	7/18/2014	Combined Cycle Combustion Turbine with Duct Burner	Natural Gas	20282	MMCF/YR	This is a 427 MW Siemens Combined Cycle Turbine with duct burner Heat Input rate of the turbine = 2276 MMBtu/hr (HHV) Heat Input rate of the Duct burner= 777 MMBtu/hr (HHV)	Selective Catalytic reduction (SCR) and use of natural gas a clean burning fuel	23	lb/hr	3-HR ROLLING AVE BASED ON 1-HR BLOCK	2	PPMVD	3-HR ROLLING AVE BASED ON 1-HR BLOCK	0		
NY-0095	CATHINES BELLPORT ENERGY CENTER	5/10/2006	COMBUSTION TURBINE	NATURAL GAS	2221	MMBTU/H	COMBINED CYCLE WITH DUCT FIRING UP TO 494 MMBTU/H	SCR	2	ppmvd		0			0		

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Nitrogen Oxides (NOx) RBLC Search - Combustion Turbines Firing Natural Gas (With Duct Burning)  
Invenergy, LLC - Allegheny County Energy Center Project**

RBLCD	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
NY-0098	ATHENS GENERATING PLANT	1/19/2007	FUEL COMBUSTION (GAS)	NATURAL GAS	3100	MMBTU/H	THE FACILITY CONSISTS OF 3 WESTINGHOUSE MODEL 501G GAS COMBINED CYCLE TURBINES (245 MW BASE LOAD), HEAT RECOVERY STEAM GENERATORS, AND STEAM TURBINE GENERATORS (115 MW) WITH SELECTIVE CATALYTIC REDUCTION (SCR) FOR NOX EMISSION CONTROL. NOX EMISSIONS FROM THE TURBINES ARE ADDITIONALLY CONTROLLED BY AMMONIUM HYDROXIDE INJECTION.	THE TURBINES EMPLOY DRY LOW NOX TECHNOLOGY AND NORMALLY OPERATE ON GAS. NOX EMISSIONS ARE ADDITIONALLY CONTROLLED BY SELECTIVE CATALYTIC REDUCTION WITH AMMONIUM HYDROXIDE INJECTION.	2	ppmvd	3 HOUR BLOCK AVERAGE/STEADY STATE	23.4	lb/hr	3 HOUR BLOCK AVERAGE/STEADY STATE	2	PPMVD @ 15% O2	3 HOUR BLOCK AVERAGE/STEADY STATE
NY-0100	EMPIRE POWER PLANT	6/23/2005	FUEL COMBUSTION (NATURAL GAS)	NATURAL GAS	2099	MMBTU/H		DRY LOW NOX COMBUSTION TECHNOLOGY IN COMBINATION WITH SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM	2	ppmvd	3-HOUR BLOCK AVE./ STEADY STATE	14.59	lb/hr	3-HOUR BLOCK AVE./ STEADY STATE	2	PPMVD AT 15% O2	3-HOUR BLOCK AVE./ STEADY STATE
NY-0100	EMPIRE POWER PLANT	6/23/2005	FUEL COMBUSTION (NATURAL GAS) DUCT BURNING	NATURAL GAS	646	MMBTU/H		DRY LOW NOX COMBUSTION TECHNOLOGY IN COMBINATION WITH SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM	3	ppmvd	3-HOUR BLOCK AVE./ STEADY STATE	28.9	lb/hr	3-HOUR BLOCK AVE./ STEADY STATE	3	PPMVD AT 15% O2	3-HOUR BLOCK AVE./ STEADY STATE
*OH-0352	OREGON CLEAN ENERGY CENTER	6/18/2013	2 Combined Cycle Combustion Turbines-Siemens, with duct burners	Natural Gas	51560	MMSCF/rolling 12-MO	Two Siemens 2932 MMBTU/H combined cycle combustion turbines, both with 300 MMBTU/H duct burners, with dry low NOx combustors, SCR, and catalytic oxidizer. Will install either 2 Siemens or 2 Mitsubishi, not both (not determined). Short term limits are different with and without duct burners. This process with duct burners.	selective catalytic reduction (SCR); dry low NOx combustors; lean fuel technology	21	lb/hr		92	T/Y/R	PER ROLLING 12 MONTHS	2	PPM	PPMVD AT 15% O2
*OH-0352	OREGON CLEAN ENERGY CENTER	6/18/2013	2 Combined Cycle Combustion Turbines-Mitsubishi, with duct burners	Natural Gas	47917	MMSCF/rolling 12-MO	Two Mitsubishi 2932 MMBTU/H combined cycle combustion turbines, both with 300 MMBTU/H duct burners, with dry low NOx combustors, SCR, and catalytic oxidizer. Will install either 2 Siemens or 2 Mitsubishi, not both (not determined). Short term limits are different with and without duct burners. This process with duct burners.	selective catalytic reduction (SCR); dry low NOx combustors; lean fuel technology	20.8	lb/hr		94.8	T/Y/R	PER ROLLING 12 MONTHS	2	PPM	PPMVD AT 15% O2
*OH-0356	DUKE ENERGY HANGING ROCK ENERGY	12/18/2012	Turbines (4) (model GE 7FA) Duct Burners On COMBUSTION TURBINE AND DUCT BURNER	NATURAL GAS	172	MW	Four GE 7FA combined cycle turbines, dry low NOx burners and selective catalytic reduction. These limits are for each of the 4 turbines individually, while operating with the duct burners on. This permit is a modification to RBLC OH-0252 to remove hourly restrictions on duct burners.	Dry Low NOx burners and Selective Catalytic Reduction	27.6	lb/hr		120.9	T/Y/R	PER ROLLING 12 MONTHS	3	PPM	PPMVD AT 15% O2 ON 3-H BLOCK AVERAGE
OK-0115	LAWTON ENERGY COGEN FACILITY	12/12/2006	GAS-FIRED TURBINES					SCR W/ DRY LOW NOX BURNERS AND DRY LOW NOX COMBUSTION	3.5	ppmvd	@ 15% O2	0			0		
OK-0117	PSO SOUTHWESTERN POWER PLT	2/9/2007						DRY LOW NOX	9	ppmvd		0			0		
OK-0129	CHOUTEAU POWER PLANT	1/23/2009	COMBINED CYCLE COGENERATION & 25MW COMBUSTION TURBINE & HEAT RECOVERY STEAM GENERATOR	NATURAL GAS	1882	MMBTU/H	SIEMENS V84.3A	SCR AND DRY LOW-NOX	2	ppmvd	1-HI AVG @ 15% O2	15.25	lb/hr	1-HI AVG	0		
OR-0041	WANAPA ENERGY CENTER	8/8/2005	COMBUSTION TURBINE & HEAT RECOVERY STEAM GENERATOR	NATURAL GAS	2384.1	MMBTU/H	GE 7241FA TURBINE AND DUCT BURNER. COMBUSTION TURBINE - 1,778.5 MMBTU/H DUCT BURNER - 605.6 MMBTU/H	DRY LOW-NOX BURNERS AND SCR	2	ppmvd	3 HOURS	2	PPMVD		0		
OR-0048	CARTY PLANT	12/29/2010	COMBINED CYCLE NATURAL GAS-FIRED ELECTRIC GENERATING UNIT	NATURAL GAS	2866	MMBTU/H		SELECTIVE CATALYTIC REDUCTION (SCR)	2	ppmvd	3-HOUR ROLLING	0			0		
*OR-0050	TROUTDALE ENERGY CENTER, LLC	3/5/2014	Mitsubishi M501-GAC combustion turbine, combined cycle configuration with duct burner.	natural gas	2988	MMBTU/hr	or ULSD. Duct burner 499 MMBTU/hr, natural gas	ULSD; dry low-NOx burners when combusting natural gas; Utilize water injection when combusting ULSD; Utilize selective catalytic reduction (SCR) with aqueous ammonia injection at all times except during startup and shutdown; Limit the time in startup or shutdown.	2	ppmvd	3-HR ROLLING AVERAGE ON NG	5.5	PPMVD	3-HR ROLLING AVERAGE ON ULSD	0		
PA-0278	MOXIE LIBERTY LLC/ASYLUM POWER PL T	10/10/2012	Combined-cycle Turbines (2) - Natural gas-fired	Natural Gas	3277	MMBTU/H	Two combine cycle Turbines, each with a combustion turbine and heat recovery steam generator with duct burner. Each combined-cycle process will be rated at 468 MW or less. The heat input rating of each combustion gas turbine is 2890 MMBtu/hr (HHV) or less, and the heat input rating of each supplemental duct burner is equal to 387 MMBtu/hr (HHV) or less.	Dry low-NOx (DLN) combustor and selective catalytic reduction (SCR)	2	ppmvd		0			0		
*PA-0286	MOXIE ENERGY LLC/PATRIOT GENERATION PLT	1/31/2013	Combined Cycle Power Blocks 472 MW - (2)	Natural Gas	0		Two natural-gas-fired combined cycle powerblocks where each powerblock consists of a combustion turbine and heat recovery steam generator with duct burner.	SCR	2	ppmvd		111.2	T/Y/R	EACH UNIT	0		
*PA-0288	SUNBURY GENERATION LP/SUNBURY SES	4/1/2013	Combined Cycle Combustion Turbine AND DUCT BURNER (3)	Natural Gas	2538000	MMBTU/H	Three powerblocks consisting of three (3) natural gas fired F class combustion turbines coupled with three (3) heat recovery steam generators (HSRGs) equipped with natural gas fired duct burners.	SCR	2	ppmvd	CORRECTED TO 15% OXYGEN	17.4	lb/hr	DUCT BURNERS NOT OPERATING	18.4	LB/H	DUCT BURNERS OPERATING
*PA-0291	HICKORY RUN ENERGY STATION	4/23/2013	COMBINED CYCLE UNITS #1 and #2	Natural Gas	3.4	MMCF/HR	The Permittee shall select and install any of the turbine options listed below (or newer versions of these turbines if the Department determines that such newer versions achieve equivalent or better emissions rates and exhaust parameters): 1. General Electric 7FA (GE 7FA) 2. Siemens SGT6-5000F (Siemens F) 3. Mitsubishi M501G (Mitsubishi G) 4. Siemens SGT6-8000F (Siemens F) The emissions listed are for the Siemens SGT6-8000F unit.	SCR	2	ppmvd	WITH OR WITHOUT DUCT BURNER	17.25	T/Y/R	INCLUDING START UP AND SHUT DOWN	0		
*PA-0296	BERKS HOLLOW ENERGY ASSOC LLC/CONTELAUNEE	12/17/2013	Turbine, Combined Cycle, #1 and #2	Natural Gas	3046	MMBTU/hr	Equipped with SCR and Oxidation Catalyst	SCR	131.6	T/Yr	12-MONTH ROLLING TOTAL	0			0		
*PA-0298	FUTURE POWER PA/GOOD SPRINGS NGCC FACILITY	3/4/2014	Turbine, COMBINED CYCLE UNIT (Siemens 5000)	Natural Gas	2267	MMBTU/hr		SCR	2	ppmvd	@ 15% OXYGEN	19.6	lb/hr	WITH DUCT BURNER	79.9	TPY	BASED ON A 12-MONTH ROLLING TOTAL
TX-0497	INEOS CHOCOLATE BAYOU FACILITY	8/29/2006	COGENERATION TRAIN 2 AND 3 (TURBINE AND DUCT BURNER EMISSIONS)	NATURAL GAS	35	MW	GREEN POWER ONE WILL CONSIST OF TWO NOMINALLY RATED 35 MW GAS FIRED TURBINES AND TWO HEAT RECOVERY STEAM GENERATORS, EQUIPPED WITH 312 MMBTU/H DUCT BURNERS. THE COMBUSTION TURBINES WILL ONLY BURN PIPELINE QUALITY SWEET NATURAL GAS. THE DUCT BURNERS WILL BURN NATURAL GAS, COMPLEX GAS OR MIXTURES OF NATURAL GAS AND COMPLEX GAS. STEAM PRODUCED IN THE HRSGS WILL BE USED IN THE CHOCOLATE BAYOU WORKS CHEMICAL COMPLEX. THE CHEMICAL COMPLEX WILL CONSUME APPROXIMATELY HALF OF THE ELECTRICAL OUTPUT PRODUCED BY THE TWO NEW TURBINES. EXCESS POWER PRODUCED BY THE COMBUSTION TURBINES WILL BE SOLD TO THE GRID. THE EMISSIONS ARE PER TRAIN.	BP AMOCO PROPOSES TO USE SCR TO CONTROL NOX EMISSIONS FROM BOTH TURBINES AND DUCT BURNERS AFTER CONSIDERING ALTERNATIVE NOX CONTROL METHODS. THE TURBINES AND DUCT BURNERS WILL ALSO USE LOW NOX COMBUSTORS. BP AMOCO PROPOSES	11.43	lb/hr	3-HR AVG.	90.77	T/Y/R		0		

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Invenergy, LLC - Allegheny County Energy Center Project**

RBLCD	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
TX-0502	NACOGDOCHES POWER STERNE GENERATING FACILITY	6/5/2006	WESTINGHOUSE/SIEMENS MODEL SW501F GAS TURBINE W/416.5 MMBTU DUCT BURNERS	NATURAL GAS	190	MW		STAG POWER LLC IS PROPOSING THE USE OF DRY LOW NOX (DLN) COMBUSTORS FOR THE TURBINES AND LOW NOX BURNERS IN THE DUCT BURNERS ALONG WITH SELECTIVE CATALYST REDUCTION (SCR) SYSTEM FOR THE CONTROL OF NOX EMISSIONS FROM THE COMB	45.4	lb/hr		504	T/YR		0		
TX-0516	CITY PUBLIC SERVICE JK SPRUCE ELECTRIC GENERATING UNIT 2	12/28/2005	SPRUCE POWER GENERATOR UNIT NO 2						1600	lb/hr		1752	T/YR		0		
TX-0546	PATTILLO BRANCH POWER PLANT	6/17/2009	ELECTRICITY GENERATION	NATURAL GAS	350	MW	EACH TURBINE/HRSG WILL BE DESIGNED TO OUTPUT 350 MW. TURBINES BEING CONSIDERED FOR THE PROJECT ARE GE 7FA, GE 7FB, AND SIEMENS SGT6-5000F.	SELECTIVE CATALYTIC REDUCTION	2	ppmvd	@ 15% O2 24-HR ROLLING AVG	0			0		
TX-0547	NATURAL GAS-FIRED POWER GENERATION FACILITY	6/22/2009	ELECTRICITY GENERATION	NATURAL GAS	250	MW	LAMAR POWER PARTNERS PROPOSES TO CONSTRUCT A NATURAL GAS-FIRED COMBINED-CYCLE POWER BLOCK TO BE BUILT AT THE EXISTING SITE IN LAMAR COUNTY, TEXAS. THE NEW POWER BLOCK WILL BE CAPABLE OF PRODUCING EITHER 620 OR 910 MEGAWATTS OF ELECTRICITY, DEPENDING UPON WHICH COMBUSTION TURBINE MODEL OPTION IS CHOSEN. THE PROPOSED PROJECT WOULD INCLUDE TWO COMBUSTION TURBINES (EITHER 170 MW GENERAL ELECTRIC 7FAS OR 250 MW MITSUBISHI 501GS), TWO HEAT RECOVERY STEAM GENERATORS WITH DUCT BURNERS AND ONE STEAM TURBINE. THE GE7FAS WOULD BE CAPABLE OF PRODUCING 620 MW OF ELECTRICITY IN COMBINED CYCLE MODE, WHILE THE M501GS WOULD PRODUCE 910 MW IN COMBINED CYCLE MODE.	SELECTIVE CATALYTIC REDUCTION	2	ppmvd	@ 15% O2, 24-HR ROLLING AVG	0			0		
TX-0548	MADISON BELL ENERGY CENTER	8/18/2009	ELECTRICITY GENERATION	NATURAL GAS	275	MW	FOUR GE PG7121(EA) COMBINE CYCLE TURBINES FIRING NATURAL GAS WILL DIRECTLY GENERATE 75 MW; EACH HAS A 165 MMBTU/HR DUCT BURNER AND A HEAT RECOVERY STEAM GENERATOR. TWO HRSGs WILL TURN ONE 125 MW STEAM TURBINE AND THE OTHER TWO WILL TURN ANOTHER 125 MW STEAM TURBINE. THE TURBINE MAY OPERATE WITHOUT THE DUCT BURNER.	SELECTIVE CATALYTIC REDUCTION	2	ppmvd	@ 15% O2, 24-HR ROLLING AVG	0			0		
TX-0590	KING POWER STATION	8/5/2010	Turbine	natural gas	1350	MW	The plant will be designed to generate 1,350 nominal megawatts of power. There are two configuration scenarios: either four Siemens SGT6-5000F CTGs in combined-cycle mode (Scenario A) or four GE Frame 7FA CTGs in combined cycle mode (Scenario B). Scenario B also includes one or two auxiliary boilers.	DLN burners and SCR	2	ppmvd	1-HOUR AVERAGE	0			0		
TX-0600	THOMAS C. FERGUSON POWER PLANT	9/1/2011	Natural gas-fired turbines	natural gas	390	MW	(2) GE7FA at 195 MW each. (1) steam turbine at 200 MW. Each turbine is equipped with an unfired heat recovery steam generator (HRSG), which provides steam for the steam turbine.	Dry low NOx burners and Selective Catalytic Reduction	2	ppmvd	ROLLING 24-HR AT 15% OXYGEN	0			0		
TX-0618	CHANNEL ENERGY CENTER LLC	10/15/2012	Combined Cycle Turbine	natural gas	180	MW	The turbine is a Siemens 501F rated at a nominal 180 MW and the duct burner will have a maximum design heat input of 475 MMBtu/hr.	Selective catalytic reduction	2	ppmvd	@15% O2 ON A 3-HR ROLLING AVG	0			0		
TX-0619	DEER PARK ENERGY CENTER	9/26/2012	Combined Cycle Turbine	natural gas	180	MW	natural gas-fired combined cycle turbine generator with a heat recovery steam generator equipped with a duct burner. The turbine is a Siemens 501F rated at a nominal 180 megawatts and the DB will have a maximum design rate capability of 725 million British thermal units per hour	Selective Catalytic Reduction	2	ppmvd	@15% O2, 3-HR ROLLING AVG	0			0		
TX-0620	ES JOSLIN POWER PLANT	9/12/2012	Combined cycle gas turbine	natural gas	195	MW	The three combustion turbine generators (CTG) will be the General Electric 7FA, each with a maximum base-load electric power output of approximately 195 megawatts (MW). The steam turbine is rated at approximately 235 MW. This project also includes the installation of two emergency generators, one fire water pump, and auxiliary equipment. No duct burners.	Selective catalytic reduction	2	ppmvd	@15% O2, 24-HR ROLLING AVG	0			0		
*TX-0641	PINECREST ENERGY CENTER	11/12/2013	combined cycle turbine	natural gas	700	MW	The generating equipment consists of two natural gas-fired combustion turbines (CTs), each exhausting to a fired heat recovery steam generator (HRSG) to produce steam to drive a shared steam turbine generator. The steam turbine is rated at 271 MW of electric output. Three models of combustion turbines are being considered for this site: the General Electric 7FA.05, the Siemens SGT6-5000F(4), and the Siemens SGT6-5000F(5). The final selection of the combustion turbine will not be made until after the permit is issued. Plant output will range between 637 and 735 MW, depending on the model turbine selected. Duct Burners are rated at 750 MMBtu/hr each.	selective catalytic reduction	2	ppmvd	24-HR ROLLING AVG, 15% OXYGEN	0			0		
*TX-0660	FGE TEXAS POWER I AND FGE TEXAS POWER II	3/24/2014	Alstom Turbine	Natural Gas	230.7	MW	Four (4) Alstom GT24 CTGs, each with a HRSG and DBs, max design capacity 409 MMBtu/hr	Selective catalytic reduction	2	ppmvd	CORRECTED TO 15% O2, ROLLING 24 HR AVE	0			0		
*TX-0678	FREETREAT LNG PRETREATMENT FACILITY	7/16/2014	Combustion Turbine	natural gas	87	MW	The exhaust heat from the turbine will be used to heat a heating medium which is used to regenerate rich amine from the acid gas removal system.	Selective Catalytic Reduction	2	ppmvd	15@ O2, 3 HOUR ROLLING AVERAGE	0			0		
*TX-0689	CEDAR BAYOU ELECTRIC GENERATION STATION	8/29/2014	Combined cycle natural gas turbines	Natural Gas	225	MW		DLN, SCR	2	ppmvd	24HR ROLLING AVG.	0			0		
*TX-0698	BAYPORT COMPLEX	9/5/2013	(4) cogeneration turbines	natural gas	90	MW	(4) GE 7EA turbines providing power and process steam	DLN and Closed Loop Emissions Controls (CLEC)	5	ppmvd	@15% O2, 3-HR ROLLING AVERAGE	0			0		
*TX-0708	LA PALOMA ENERGY CENTER	2/7/2013	(2) combined cycle turbines	natural gas	650	MW	The specific equipment includes two combustion turbines (CTs) connected to electric generators, producing between 183 and 232 MW of electricity, depending on ambient temperature and the selected CT. The two HRSGs use duct burners rated at 750 MMBtu/hr each to supplement the heat energy from the CTs. The steam from the two HRSGs is combined and routed to a single-steam turbine driving a third electric generator with an electricity output capacity of 271 MW. Depending on the selected CT, total plant output at 59A°F is between 637 MW and 735 MW.	Selective Catalytic Reduction	2	ppmvd	@15% O2, 24-HR ROLLING AVERAGE	0			0		
*TX-0709	SAND HILL ENERGY CENTER	9/13/2013	Natural gas-fired combined cycle turbines	Natural Gas	173.9	MW	The applicant is considering three models of CT; one model will be selected and the permit revised to reflect the selection before construction begins. The three CT models are: (1) General Electric 7FA.04; (2) Siemens SGT6-5000F(4); or (3) Siemens SGT6-5000F(5).	SCR	2	ppmvd	24HR ROLLING AVG.	0			0		
*TX-0710	VICTORIA POWER STATION	12/1/2014	combined cycle turbine	natural gas	197	MW	General Electric 7FA.04 at 197 MW nominal output. The duct burners will be capable of a maximum natural gas firing rate of up to 483 MMBtu/hr (HIV). The duct burners may be fired additional hours; however, total annual firing will not exceed the equivalent of 4,375 hours at maximum capacity per duct burner. The available capacity of the existing steam turbine will be increased from 125 MW in its existing 1x1x1 configuration to approximately 185 MW in the 2x2x1 configuration.	Selective Catalytic Reduction	2	ppmvd	@15% O2, 24-HR ROLLING AVERAGE	3.5	PPMVD	@15% O2, 3-HR ROLLING AVERAGE	0		
*TX-0712	TRINIDAD GENERATING FACILITY	11/20/2014	combined cycle turbine	natural gas	497	MW	The facility will consist of a Mitsubishi Heavy Industries (MHI) J model gas fired combustion turbine nominally rated at 497 megawatts (MW) equipped with a HRSG and DB with a maximum design capacity of 402 million British thermal units per hour (MMBtu/hr). The gross nominal output of the CTG with HRSG and DB is 530 MW.	Selective Catalytic Reduction	2	ppmvd	@15% O2, 24-HR ROLLING AVERAGE	0			0		

**Table D-A-1  
Nitrogen Oxides (NOx) RBLC Search - Combustion Turbines Firing Natural Gas (With Duct Burning)  
Invenery, LLC - Allegheny County Energy Center Project**

RBLCD	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
*TX-0713	TENASKA BROWNSVILLE GENERATING STATION	4/29/2014	(2) combined cycle turbines	natural gas	274	MW	Each CTG is site-rated at 274 MW gross electric output at 62Â°F ambient temperature. At this condition, two HRSGs with full duct burner firing produce enough steam to generate an additional 336 MW, for a total of 884 MW gross, or with about 5% losses, about 840 MW net electric output. Under summertime conditions, the net output is approximately 800 MW with the 2x1 CCCT configuration or about 400 MW with the 1x1 CCCT configuration. The gas turbines will be one of three options:	Selective Catalytic Reduction	2	ppmvd	@15% O2, 24-HR ROLLING AVERAGE	0			0		
*TX-0714	S R BERTRON ELECTRIC GENERATING STATION	12/19/2014	(2) combined cycle turbines	natural gas	240	MW	(1) Two Siemens Model F5 (SF5) CTGs each rated at nominal capability of 225 megawatts (MW). Each CTG will have a duct fired HRSG with a maximum heat input of 688 million British thermal units per hour (MMBtu/hr). (2) Two General Electric Model 7FA (GE7FA) CTGs each rated at nominal capability of 215 MW. Each CTG will have a duct fired HRSG with a maximum heat input of 523 MMBtu/hr. (3) Two Mitsubishi Heavy Industry G Frame (MHI501G) CTGs each rated at a nominal electric output of 263 MW. Each CTG will have a duct fired HRSG with a maximum heat input of 686 MMBtu/hr.	Selective Catalytic Reduction	2	ppmvd	@15% O2, 24-HR ROLLING AVERAGE	0			0		
*TX-0730	COLORADO BEND ENERGY CENTER	4/1/2015	Combined-cycle gas turbine electric generating facility	natural gas	1100	MW	combined cycle power plant that uses two combustion turbines and one steam turbine, model GE 7HA.02	SCR and oxidation catalyst	2	ppmvd	24-HR AVERAGE	0			0		
*TX-0751	EAGLE MOUNTAIN STEAM ELECTRIC STATION	6/18/2015	Combined Cycle Turbines (kg&t;25 MW) 46" natural gas	natural gas	210	MW	Two power configuration options authorized Siemens 46" 231 MW + 500 million British thermal units per hour (MMBtu/hr) duct burner GE 46" 210 MW + 349.2 MMBtu/hr duct burner	Selective Catalytic Reduction	2	ppmvd	ROLLING 24-HR AVERAGE	0			0		
*TX-0767	LON C. HILL POWER STATION	10/2/2015	Combined Cycle Turbines (kg&t;25 MW)	natural gas	195	MW	Two power configuration options authorized Siemens 46" 240 MW + 250 million British thermal units per hour (MMBtu/hr) duct burner GE 46" 195 MW + 670 MMBtu/hr duct burner	Selective Catalytic Reduction	2	ppmvd	ROLLING 24-HR AVERAGE	0			0		
VA-0315	WARREN COUNTY POWER PLANT - DOMINION	12/17/2010	COMBINED CYCLE TURBINE & DUCT BURNER, 3	Natural Gas	2996	MMBTU/H	Emissions are for one of three units (Mitsubishi natural gas-fired combustion turbine (CT) generator, Model M501 GAC).	Two-stage, lean pre-mix, dry low-NOx combustor and a selective catalytic reduction (SCR) control system using ammonia injection.	2	ppmvd	ONE HOUR AVERAGE	25.3	lb/hr	ONE HOUR AVERAGE	0		
*VA-0321	BRUNSWICK COUNTY POWER STATION	3/12/2013	COMBUSTION TURBINE GENERATORS, (3)	Natural Gas	3442	MMBTU/H	Three (3) Mitsubishi M501 GAC combustion turbine generators with HRSG duct burners (natural gas-fired). Throughput and Units above are for the GE7F.05.	Selective catalytic reduction and ultra low NOx burners.	2	ppmvd	1 H AVG	0			0		
*VA-0322	GREEN ENERGY PARTNERS/ STONEWALL, LLC	4/30/2013	Large combustion turbines (kg&t;25MW) CCT1 and CCT2	Natural Gas	2.23	MMBTU/hr	Siemens SGT5-5000F5. Throughput: 2.260 MMBTU/hr	Selective Catalytic Reduction (SCR), with ammonia injection and dry low NOx combustion.	0			0			0		
WA-0328	BP CHERRY POINT COGENERATION PROJECT	1/11/2005	GE 7FA COMBUSTION TURBINE & HEAT RECOVERY STEAM GENERATOR	NATURAL GAS	174	MW	THREE IDENTICAL CT & HRSG UNITS. EACH CT WILL HAVE AN ANNUAL AVERAGE CAPACITY RATING OF 1614 MMBTU/HR. EACH HRSG DUCT BURNER WILL HAVE A MAXIMUM FIRING RATE OF 105 MMBTU/HR. This entry is for both of two identical units at the facility.	LEAN PRE-MIX DRY LOW-NOX BURNERS ON CT. LOW-NOX DUCT BURNERS. SCR.	2.5	ppmvd	3-HR @ 15%O2	0			0		*SEE NOTES
*WV-0025	MOUNDSVILLE COMBINED CYCLE POWER PLANT	11/21/2014	Combined Cycle Turbine Duct Burner	Natural Gas	2419.61	mmBtu/Hr	Nominal 197 mW General Electric Frame 7FA.04 Turbine w/ Duct Burner - throughput denotes aggregate heat input of turbine and duct burner (HHV).	SCR & Dry Low-NOx Burners	15.2	lb/hr		0			2	PPM	@ 15% O2
*WY-0070	CHEYENNE PRAIRIE GENERATING STATION	8/28/2012	Combined Cycle Turbine (EP01)	Natural Gas	40	MW		SCR	3	ppmvd	1-HOUR	4.6	lb/hr	30-DAY ROLLING AVERAGE	25.5	T/YR	
*WY-0070	CHEYENNE PRAIRIE GENERATING STATION	8/28/2012	Combined Cycle Turbine (EP02)	Natural Gas	40	MW		SCR	3	ppmvd	1-HOUR	4.6	lb/hr	30-DAY ROLLING AVERAGE	25.5	T/YR	
	Astoria Energy LLC		Combustion Turbine	Natural Gas	1000	MW		SCR/Low NOx Burners	2	ppmvd	3-hour block average; Duct Burners On	17	lb/hr	1-hr average; Duct Burners On			
	Astoria Energy LLC		Combustion Turbine	Natural Gas	1000	MW		SCR/Low NOx Burners	0.2	lb/MMBtu	1-hour average						
	Catoctin Power LLC		Combustion Turbine	Natural Gas	170	MW		Pipeline quality low sulfur NG; DLN combustion design; Low NOx burners; SCR	2.5	ppmvd	1 hr average; Duct Burners On						
	Footprint Power Salem Harbor Development LP		Combustion Turbine	Natural Gas	346	MW		SCR/Low NOx Burners	18.1	lb/hr	1-hr average; Duct Burners On	0.0074	lb/MMBtu	1-hr average; Duct Burners On			
	Footprint Power Salem Harbor Development LP		Combustion Turbine	Natural Gas	346	MW		SCR/Low NOx Burners	2	ppmvd	1-hr average; Duct Burners On	0.055	lb/MW-hr	1-hr average; Duct Burners On			
	Kalama Energy Center		Combustion Turbine	Natural Gas	2247	MMBtu/hr		SCR	2	ppmvd	1-hr average	18.5	lb/hr	1-hr average			
	Kalama Energy Center		Combustion Turbine	Natural Gas	2247	MMBtu/hr		SCR	15	ppmvd	30-day average	102.4	T/YR	12-mo rolling			
	Lawrence Energy Center LLC		Combustion Turbine	Natural Gas	180	MW		SCR with Dry Low Nox (DLN) Burners	3	ppmvd	1-hr average						
	GenComm Middletown LLC		Combustion Turbine	Natural Gas	474.9	MMBTU/hr			2.5	ppmvd							
	PacificCorp Energy		Block 1 CT	Natural Gas					2	ppmvd	3-hour	14.9	lb/hr				
	PacificCorp Energy		Block 2 CT	Natural Gas	629	MW			2	ppmvd	3-hour	14.9	lb/hr				
	Pioneer Valley		Combustion Turbine	Natural Gas	387	MW			2	ppmvd	1-hr average						
	Russell City Energy Company, LLC		Combustion Turbine	Natural Gas	2038.6	MMBTU/hr			2	ppmvd	1-hr average						
	Sevier Power Company Power Plant		Combustion Turbine	Natural Gas	580	MW			2	ppmvd	3-hr average						
	CPV Valley Energy Center Wawayanda, NY			Natural Gas	630	MW			2	ppmvd	3-hr average						
	CPV Valley Energy Center Wawayanda, NY			Natural Gas	630	MW			2	ppmvd	3-hr average						
	Woodbridge Energy Center (CPV Shore, LLC)			Natural Gas	2807	MMBTU/hr			2	ppmvd							
	Woodbridge Energy Center (CPV Shore, LLC)			Natural Gas	2307	MMBTU/hr			2	ppmvd							
	PA STATE UNIV/UNIV PARK CAMPUS		COMBINED HEAT AND POWER DUAL-FIRED COMBUSTION TURBINE	Natural Gas	86.29	MMBTU/hr			15	ppmvd							
	Hummel Station LLC		Combustion Turbine	Natural Gas	2254	MMBTU/hr			18.4	lb/hr		17.4	lb/hr				

**Table D-A-1**  
**Nitrogen Oxides (NOx) RBLC Search - Combustion Turbines Firing Natural Gas (With Duct Burning)**  
**Invenergy, LLC - Allegheny County Energy Center Project**

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
	Cricket Valley Energy Center		Combustion Turbine	Natural Gas	1000	MW			2	ppmvd	1-hr average						
	Effingham County Power		Combustion Turbine	Natural Gas	180	MW			2	ppmvd	3-hr average						
	Gibson County Generation, LLC		Combustion Turbine	Natural Gas	417	MW			2	ppmvd	24-hr average	0.0073	lb/MMBtu				
	Tenaska Partners LLC		Combustion Turbine	Natural Gas	3147	MMBtu/hr			2	ppmvd		26.5	lb/hr				
	UGI Development Co/ Hunlock Creek		Combustion Turbine	Natural Gas	471.2	MMBtu/hr			2.9	ppmvd							
	Hawkeye Generating, LLC			Natural Gas	615	MW			0.0088	lb/MMBtu	3-hr rolling	185.64	T/YR				
	Huntington Beach Energy Project			Natural Gas	939	MW (net)			2	ppmvd	1-hr rolling						
	Hess Newark Energy Center		Combustion Turbine	Natural Gas	2266	MMBtu/hr			2	ppmvd		0.0073	lb/MMBtu				
	York Energy Center Block 1				1574	MMBtu/hr			2	ppmvd	3-hour average, rolling by 1-hour						
	York Energy Center Block 2	6/15/2015			2512.5	MMBtu/hr	firing NG with duct burner		2	ppmvd	3-hour block average; average of 3 test runs						
	Shell Chemical Appalachia/Petrochemicals Complex	6/18/2015			664	MMBtu/hr	each turbine/duct burner		2	ppmvd	1-hour average	lb/hr					
	Calpine/Bethlehem Energy Center				122	MW			2.5	ppmvd							
	Liberty Electric Power, LLC				1954	MMBtu/hr	With DB		5	ppmvd							



**Table D-A-2**  
**Nitrogen Oxides (NOx) RBL Search - Combustion Turbines Firing Natural Gas (Without Duct Burning)**  
**Invenery, LLC - Allegheny County Energy Center Project**

RBL CID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
FL-0356	OKEECHOBEE CLEAN ENERGY CENTER	3/9/2016	Combined-cycle electric generating unit	Natural gas	3096	MMBtu/hr per turbine	3-on-1 combined cycle unit. GE 7HA.02 turbines, approximately 350 MW per turbine. Total unit generating capacity is approximately 1,600 MW. Primarily fueled with natural gas. Permitted to burn the base-load equivalent of 500 hr/yr per turbine on ULSD.	Selective catalytic reduction; dry low-NOx; and wet injection	2	PPMVD@15% O2	GAS, 24-HR BLOCK, EXCLUDING SSM	8	PPMVD@15% O2	ULSD, 24-HR BLOCK, EXCLUDING SSM	0		
MI-0427	FILER CITY STATION	11/17/2017	EUCCT (Combined cycle CTG with unfired HRSG)	Natural gas	1934.7	MMBTU/H	A 1,934.7 MMBTU/H natural gas fired heavy frame industrial combustion turbine. The turbine operates in combined-cycle with an unfired heat recovery steam generator (HRSG).  This emission unit is being entered as a separate process to account for the emission limits associated with startup/shutdown events, which could not be included within the previous EUCCT original process name.	SCR with DLNB (Selective catalytic reduction with dry low NOx burners).	3	PPM	24-H ROLL AVG., EXCEPT STARTUP/SHUTDOWN	21.4	LB/H	24-H ROLL AVG., EXCEPT STARTUP/SHUTDOWN	0		
MI-0427	FILER CITY STATION	11/17/2017	EUCCT (Startup/Shut down)	Natural gas	1934.7	MMBTU/H	A 1,934.7 MMBTU/H natural gas fired heavy frame industrial combustion turbine. The turbine operates in combined-cycle with an unfired heat recovery steam generator (HRSG).	SCR with DLNB (Selective catalytic reduction with dry low NOx burners).	32	POUNDS	PER EVENT	0			0		
TX-0788	NECHES STATION	3/24/2016	Combined Cycle & Cogeneration	Natural gas	231	MW	2 CTGs to operate in simple cycle & combined cycle modes. 231 MW (Siemens) or 210 MW (GE). Simple cycle operations limited to 2,500 hr/yr.	Selective Catalytic Reduction	2	PPM		0			0		
TX-0789	DECORDOVA STEAM ELECTRIC STATION	3/8/2016	Combined Cycle & Cogeneration	Natural gas	231	MW	2 CTGs to operate in simple cycle & combined cycle modes. 231 MW (Siemens) or 210 MW (GE). Simple cycle operations limited to 2,500 hr/yr.	Selective Catalytic Reduction	2	PPM		0			0		
TX-0790	PORT ARTHUR LNG EXPORT TERMINAL	2/17/2016	Refrigeration Compression Turbines	Natural gas	10	M TONNES/YR	Four GE Frame 7E gas turbines for refrigeration and compression at the site	Dry low NOx burners and good combustion practices	9	PPM	ROLLING 24-HR AVERAGE	0			0		
TX-0790	PORT ARTHUR LNG EXPORT TERMINAL	2/17/2016	Simple Cycle Electrical Generation Gas Turbines 15.210	Natural gas	34	MW	Nine GE PG725+G4 gas turbines for electrical generation at the site at 34 MW/turbine	SELECTIVE CATALYTIC REDUCTION	5	PPM	ROLLING 24-HR AVERAGE	0			0		
AK-0073	INTERNATIONAL STATION POWER PLANT	12/20/2010	Fuel Combustion	Natural Gas	59900	HP	EU IDs 5-8 Combined Cycle Natural Gas-fired Combustion Turbines rated at 59,900 hp (44.7 MW)	Turbines EU IDs 5 through 8 shall be equipped with Selective Catalytic Reduction and Dry Low NOx (SCR and DLN) combustors. SCR is a post-combustion gas treatment technique for reduction of nitric oxide (NO) and nitrogen dioxide (NO2) in the turbine exhaust stream to molecular nitrogen, water, and oxygen. This process is accomplished by using ammonia (NH3) as a reducing agent, and is injected into the flue gas upstream of the catalyst bed. By lowering the activation energy of the NOx decomposition removal efficiency of 80 to 90 percent are achievable. DLN combustors utilize multistage premix combustors where the air and fuel is mixed at a lean fuel to air ratio. The excess air in the lean mixture acts as a heat sink, which lowers peak combustion temperatures and also ensures a more homogeneous mixture, both resulting in greatly reduced NOx formation rates. DLN can reduce emissions by about 60%.	5	PPMVD	4-HOUR	0			0		
CA-1144	BLYTE ENERGY PROJECT II	4/25/2007	2 COMBUSTION TURBINES	NATURAL GAS	170	MW	EACH TURBINE WILL PRODUCE 170 MW	SELECTIVE CATALYTIC REDUCTION	2	PPMVD	AT 15% O2, 3-HR AVG	14.8	lb/hr		0		
CA-1177	OTAY MESA ENERGY CENTER LLC	7/22/2009	Gas turbine combined cycle	Natural gas	171.7	MW		SCR	2	PPMVD	1 HOUR	0			0		
CA-1178	APPLIED ENERGY LLC	3/20/2009	Gas turbine combined cycle COMBUSTION TURBINE #2 (NORMAL OPERATION, NO DUCT BURNING)	Natural gas	0		Source test results: 1.45 ppm NOx @ 15% O2 or 2.19 lb/hr <0.22 ppm VOC @ 15%O2 or <0.12 lb/hr	SCR	2	PPMVD	1 HOUR	0			0		
CA-1191	VICTORVILLE 2 HYBRID POWER PROJECT	3/11/2010	COMBUSTION TURBINE #1 (NORMAL OPERATION, NO DUCT BURNING)	NATURAL GAS	154	MW	154 MW Combined Cycle Combustion Turbine Generator	SCR	2	PPMVD	@15% O2, 1-HR AVG (NO DUCT BURNING)	11.55	lb/hr	1-HR AVG (NO DUCT BURNING)	0		
CA-1191	VICTORVILLE 2 HYBRID POWER PROJECT	3/11/2010	COMBUSTION TURBINE #2 (NORMAL OPERATION, NO DUCT BURNING)	Natural Gas	154	MW	154 MW Combined Cycle Combustion Turbine Generator	SCR	2	PPMVD	1-HR AVG, @15% O2 (NO DUCT BURNING)	11.55	lb/hr	1-HR AVG, (NO DUCT BURNING)	0		
CA-1192	AVENAL ENERGY PROJECT	6/21/2011	COMBUSTION TURBINE #1 (NORMAL OPERATION, NO DUCT BURNING)	NATURAL GAS	180	MW		SCR, DRY LOW NOX COMBUSTORS	2	PPMVD	@15% O2, 1-HR AVG	13.55	lb/hr	1-HR AVG	0		
CA-1192	AVENAL ENERGY PROJECT	6/21/2011	COMBUSTION TURBINE #2 (NORMAL OPERATION, NO DUCT BURNING)	NATURAL GAS	180	MW		SCR, DRY LOW NOX COMBUSTORS	2	PPMVD	@15% O2, 1-HR AVG	13.55	lb/hr	1-HR AVG	0		
CA-1212	PALMDALE HYBRID POWER PROJECT	10/18/2011	COMBUSTION TURBINES (NORMAL OPERATION)	NATURAL GAS	154	MW	TWO NATURAL GAS-FIRED COMBUSTION TURBINE-GENERATORS (CTGS) RATED AT 154 MEGAWATT (MW, GROSS) EACH, TWO HEAT RECOVERY STEAM GENERATORS (HRSG), ONE STEAM TURBINE GENERATOR (STG) RATED AT 267 MW, AND 251 ACRES OF PARABOLIC SOLAR-THERMAL COLLECTORS WITH ASSOCIATED HEAT-TRANSFER EQUIPMENT	DRY LOW NOX (DLN) COMBUSTORS, SELECTIVE CATALYTIC REDUCTION (SCR)	2	PPMVD	@15% O2, 1-HR AVG	0			0		
CO-0056	ROCKY MOUNTAIN ENERGY CENTER, LLC	5/2/2006	NATURAL-GAS FIRED, COMBINED-CYCLE TURBINE	NATURAL GAS	300	MW	ONE NEW COMBINED-CYCLE TURBINE IS BEING ADDED TO AN EXISTING FACILITY.	LOW NOX BURNERS AND SCR	3	PPMVD	HOURLY MAX	0.013	LB/MMBTU	SEE NOTE	3	PPM @ 15% O2	
*CO-0073	PUEBLO AIRPORT GENERATING STATION	7/22/2010	Four combined cycle combustion turbines	natural gas	373	mmbtu/hr	Three GE, LMS6000 PF, natural gas-fired, combined cycle CTG, rated at 373 MMBtu per hour each, based on HHV and one (1) HRSG each with no Duct Burners	Dry Low NOx (DLN) Combustor and Selective Catalytic Reduction (SCR)	3	PPMVD	1-HR AVE	4.1	lb/hr	30-DAY ROLLING AVE	0		

Table D-A-2

RBLCD	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
*DE-0023	NRG ENERGY CENTER DOVER	10/31/2012	UNIT 2-KD1	Natural Gas	655	MMBTU/H	500 MMBTU/hr Gas Turbine (Model: GE LM6000) rated at 52 MW and 1.55 MMBTU/hr Heat Recovery Steam Generator rated at 18 MW. The unit is required to operate a certified CEMS and COMS.	Selective Catalytic Reduction	5.76	lb/hr	1 HR AVERAGE	2.5	PPMVD	@ 15% OXYGEN BASED ON A 1 HOUR AVERAGE	0		
DE-0024	GARRISON ENERGY CENTER	1/30/2013	Unit 1	Natural Gas	2260	million BTU/s		Low NOx Combustors, Selective Catalytic Reduction	2	PPMVD	HOURLY AS BASELOAD ON NAT. GAS	6	PPMVD	3 HOUR AVERAGE ON USED OIL	0		
FL-0265	HINES POWER BLOCK 4	6/8/2005	COMBINED CYCLE TURBINE	NATURAL GAS	530	MW		SCR	2.5	PPMVD	NATURAL GAS	10	PPMVD	OIL	2.5	PPM @ 15% O2	
							2171 MMBTU/HR FUEL OIL										
							EACH COMBINED CYCLE UNIT SYSTEM (TWO &#160;&#160;&#160;3-ON-1&#160;&#160;&#160;) WILL CONSIST OF: THREE NOMINAL 250 MEGAWATT MODEL 501G GAS TURBINE-ELECTRICAL GENERATOR SETS WITH EVAPORATIVE INLET COOLING SYSTEMS; THREE SUPPLEMENTARY-FIRED HEAT RECOVERY STEAM GENERATORS (HRSG&#160;s) WITH SCR REACTORS; ONE NOMINAL 428 MMBTU/HOUR (LHV) GAS-FIRED DUCT BURNER LOCATED WITHIN EACH OF THE THREE HRSG&#160;s. THREE 149 FEET EXHAUST STACKS; ONE 26 CELL MECHANICAL DRAFT COOLING TOWER; AND A COMMON NOMINAL 500 MW STEAM-ELECTRICAL GENERATOR.										
FL-0286	FPL WEST COUNTY ENERGY CENTER	1/10/2007	COMBINED CYCLE COMBUSTION GAS TURBINES - 6 UNITS	NATURAL GAS	2333	MMBTU/H		DRY LOW NOX AND SCR WATER INJECTION	2	PPMVD	24-HR (GAS)	8	PPMVD	24-HR (OIL)	0		
							THREE NOMINAL 250 MW CTG (EACH) WITH SUPPLEMENTARY-FIRED HRSG										
FL-0303	FPL WEST COUNTY ENERGY CENTER UNIT 3	7/30/2008	THREE NOMINAL 250 MW CTG (EACH) WITH SUPPLEMENTARY-FIRED HRSG	NATURAL GAS	2333	MMBTU/H		DRY LOW NOX SELECTIVE CATALYST REDUCTION	2	PPMVD	24 HOURS	8	PPMVD	24 HOURS	0		
							300 MW COMBINED CYCLE COMBUSTION TURBINE										
FL-0304	CANE ISLAND POWER PARK	9/8/2008	COMBINED CYCLE COMBUSTION TURBINE	NATURAL GAS	1860	MMBTU/H		SCR	2	PPMVD	24-HR	0			0		
							Four GE 7FA combined cycle turbines, dry low NOx burners and selective catalytic reduction. These limits are for each of the 4 turbines individually, while operating with the duct burners on. This permit is a modification to RBLC OH-0252 to remove hourly restrictions on duct burners.										
							Basis for the emission standard is either NSPS Subpart KKKK or Department BACT determinations.										
FL-0337	POLK POWER STATION	10/14/2012	Combine cycle power block (4 on 1)	natural gas	1160	MW		SCR/DLN	2	PPMVD	24-HR BLOCK (GAS) CEMS	8	PPMVD	24-HR BLOCK (OIL) CEMS	0		
							The BACT emission standards for NOx while operating in combined cycle are more stringent than the corresponding Subpart KKKK emissions standards of 15 and 42 ppmv @15% O2 on a 30-day rolling average for natural gas and fuel oil, respectively.										
							COMBINED CYCLE COMBUSTION TURBINE - ELECTRIC GENERATING PLANT										
GA-0138	LIVE OAKS POWER PLANT	4/8/2010	COMBINED CYCLE COMBUSTION TURBINE - ELECTRIC GENERATING PLANT	NATURAL GAS	600	MW		DRY LOW NOx BURNERS, SELECTIVE CATALYTIC REDUCTION	2.5	PPMVD	3 HOUR AVERAGE/CONDITION 2.11	87	T/YR	12 CONSECUTIVE MONTH AVERAGE/CONDITION 2	0		
*IA-0107	MARSHALLTOWN GENERATING STATION	4/14/2014	Combustion turbine #1 - combined cycle	natural gas	2258	mmBTU/hr		Low-NOx burners and SCR	2	PPMVD	30-DAY ROLLING AVG. @15% O2	114.5	T/YR	12-MONTH ROLLING TOTAL	0		
*IA-0107	MARSHALLTOWN GENERATING STATION	4/14/2014	Combustion turbine #2 -combined cycle	natural gas	2258	mmBTU/hr	two identical Siemens SGT6-5000F combined cycle turbines without duct firing, each at 2258 mmBTU/hr generating approx. 300 MW each.	SCR, Low-NOx burner	2	PPMVD	30-DAY ROLLING AVERAGE	114.5	T/YR	12-MONTH ROLLING TOTAL	0		
								LOW NOX BURNERS AND SELECTIVE CATALYTIC REDUCTION (SCR) ADD-ON CONTROLS	21.8	lb/hr	HOURLY MAXIMUM	95.5	T/YR	ANNUAL MAXIMUM	3	PPM	ANNUAL AVERAGE
LA-0192	CRESCENT CITY POWER	6/6/2005	GAS TURBINES - 187 MW (2)		2006	MMBTU/H											
LA-0257	SABINE PASS LNG TERMINAL	12/6/2011	Combined Cycle Refrigeration Compressor Turbines (8)	natural gas	286	MMBTU/H		water injection	22.94	lb/hr	HOURLY MAXIMUM	0			20	PPMV	AT 15% O2
							This is a combined-cycle combustion turbine with a non-fired heat recovery steam generator (HRSG).										
*MI-0402	SUMPTER POWER PLANT	11/17/2011	Combined cycle combustion turbine w/ HRSG	Natural gas	130	MW electrical output		Natural gas-fired combustion turbine conversion to combined-cycle.	9	PPMVD	24-HR ROLLING AVERAGE	36.9	lb/hr	24-HR ROLLING AVERAGE	0		
							Throughput is 2,237 MMBTU/H for each CTG	Low NOx burners									
							Equipment is permitted as following flexible group (FG): FG-CTG1-2: Two natural gas fired CTGs with each turbine containing a heat recovery steam generator (HRSG) to operate in combined cycle. The two CTGs (with HRSG) are connected to one steam turbine generator. Each CTG is equipped with a dry low NOx (DLN) burner and a selective catalytic reduction (SCR) system.	Dry low NOx (DLN) burner and selective catalytic reduction (SCR) system.	2	PPMVD	EACH CTG; 24-H ROLLING AVG.	16.2	lb/hr	EACH CTG; 24-H ROLLING AVG.	0		
*MI-0405	MIDLAND COGENERATION VENTURE	4/23/2013	Natural gas fueled combined cycle combustion turbine generators (CTG) with HRSG	Natural gas	2237	MMBTU/H		Natural gas fired CTG with DLN and HRSG 4 total.									
							Technology A (4 total) is 2587 MMBTU/H design heat input each CTG.										
							Technology B (4 total) is 2688 MMBTU/H design heat input each CTG.										
							Permit was issued for either of two F Class turbine technologies with slight variations in emission rates. Applicant will select one technology. Installation is two separate CTG/HRSG trains driving one steam turbine electrical generator. Two 2X1 Blocks. Each CTG will be rated at 211 to 230 MW (gross) output and the station nominal generating capacity will be up to 1,400 MW.	Low NOx burners and selective catalytic reduction.	3	PPMVD	24-H ROLLING AVERAGE	760	lb/hr	1-H AVERAGE	0		
*MI-0410	THETFORD GENERATING STATION	7/25/2013	FGCCA or FGCCB-4 nat. gas fired CTG w/ DB for HRSG	natural gas	2587	MMBTU/H heat input, each CTG		Low NOx burners and selective catalytic reduction.	3	PPMVD	24-H ROLLING AVERAGE	760	lb/hr	1-H AVERAGE	0		
							This is a 427 MW Siemens Combined Cycle Turbine with duct burner	SELECTIVE CATALYTIC REDUCTION (SCR) AND WATER INJECTION	0.01	LB/MMBTU	3 HR ROLLING AVERAGE	2	PPMVD	3 HR ROLLING AVERAGE	0		
NJ-0074	WEST DEPTFORD ENERGY	5/6/2009	TURBINE, COMBINED CYCLE	NATURAL GAS	17298	MMFT3/YR											
							Natural Gas Usage <= 33,691 MMHr*35yr per 365 consecutive day period, rolling one day basis (per two turbines and two duct burners)										
*NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	Combined Cycle Combustion Turbine -Siemens turbine without Duct Burner	Natural gas	33691	MMcubic ft/yr		Selective Catalytic Reduction and Dry Low NOx	2	PPMVD	3-HR ROLLING AVE BASED ON 1-HR BLOCK	19	lb/hr	AVERAGE OF THREE ONE HOUR TESTS	0		
							The heat input rate of each Siemens combustion turbine will be 2,356 MMBtu/hr(HHV)										
							Natural Gas Usage <= 33,691 MMHr*35yr per 365 consecutive day period, rolling one day basis (per two turbines and two duct burners)										
*NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITHOUT DUCT BURNER - GENERAL ELECTRIC	Natural Gas	33691	MMCF/YR		Selective Catalytic Reduction System (SCR) and Dry Low NOx	2	PPMVD	3-HR ROLLING AVERAGE BASED ON 1-HR BLOCK	16.8	lb/hr	AVERAGE OF THREE ONE-HOUR TESTS	0		
							The heat input rate of each General Electric combustion turbine will be 2,312 MMBtu/hr(HHV)										
							This is a 427 MW Siemens Combined Cycle Turbine with duct burner										
							Heat Input rate of the turbine = 2276 MMBtu/hr (HHV)										
							Heat Input rate of the Duct burner= 777 MMBtu/hr(HHV)										
*NJ-0082	WEST DEPTFORD ENERGY STATION	7/18/2014	Combined Cycle Combustion Turbine without Duct Burner	Natural Gas	20282	MMCF/YR		Selective Catalytic Reduction System (SCR) and use of natural gas a clean burning fuel	2	PPMVD	3-HR ROLLING AVE BASED ON 1-HR BLOCK	17.33	lb/hr	3-HR ROLLING AVE BASED ON 1-HR BLOCK	0		
							The fuel use of 20,282 MMCF/YR is for three turbines and three Duct burner.										

**Table D-A-2**  
**Nitrogen Oxides (NOx) RBL Search - Combustion Turbines Firing Natural Gas (Without Duct Burning)**  
**Invenergy, LLC - Allegheny County Energy Center Project**

RBL CID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
NY-0098	ATHENS GENERATING PLANT	1/19/2007	FUEL COMBUSTION (GAS)	NATURAL GAS	3100	MMBTU/H	THE FACILITY CONSISTS OF 3 WESTINGHOUSE MODEL 501 G GAS COMBINED CYCLE TURBINES (245 MW BASE LOAD), HEAT RECOVERY STEAM GENERATORS, AND STEAM TURBINE GENERATORS (115 MW) WITH SELECTIVE CATALYTIC REDUCTION (SCR) FOR NOX EMISSION CONTROL. NOX EMISSIONS FROM THE TURBINES ARE ADDITIONALLY CONTROLLED BY AMMONIUM HYDROXIDE INJECTION.	THE TURBINES EMPLOY DRY LOW NOX TECHNOLOGY AND NORMALLY OPERATE ON GAS. NOX EMISSIONS ARE ADDITIONALLY CONTROLLED BY SELECTIVE CATALYTIC REDUCTION WITH AMMONIUM HYDROXIDE INJECTION.	2	PPMVD	3 HOUR BLOCK AVERAGE/STEADY STATE	23.4	lb/hr	3 HOUR BLOCK AVERAGE/STEADY STATE	2	PPMVD @ 15% O2	3 HOUR BLOCK AVERAGE/STEADY STATE
NY-0100	EMPIRE POWER PLANT	6/23/2005	FUEL COMBUSTION (NATURAL GAS)	NATURAL GAS	2099	MMBTU/H	Two Mitsubishi 2932 MMBtu/H combined cycle combustion turbines, both with 300 MMBtu/H duct burners, with dry low NOx combustors, SCR, and catalytic oxidizer. Will install either 2 Siemens or 2 Mitsubishi, not both (not determined). Short term limits are different with and without duct burners. This process without duct burners.	DRY LOW NOX COMBUSTION TECHNOLOGY IN COMBINATION WITH SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM	2	PPMVD	3-HOUR BLOCK AVE./ STEADY STATE	14.59	lb/hr	3-HOUR BLOCK AVE./ STEADY STATE	2	PPMVD AT 15% O2	3-HOUR BLOCK AVE./ STEADY STATE
*OH-0352	OREGON CLEAN ENERGY CENTER	6/18/2013	2 Combined Cycle Combustion Turbines-Siemens, without duct burners	Natural Gas	515600	MMSCF/rolling 12-months	Two Mitsubishi 2932 MMBtu/H combined cycle combustion turbines, both with 300 MMBtu/H duct burners, with dry low NOx combustors, SCR, and catalytic oxidizer. Will install either 2 Siemens or 2 Mitsubishi, not both (not determined). Short term limits are different with and without duct burners. This process without duct burners.	selective catalytic reduction (SCR); dry low NOx combustors; lean fuel technology	22	lb/hr		92	T/YR	PER ROLLING 12 MONTHS	2	PPM	PPMVD AT 15% O2
*OH-0352	OREGON CLEAN ENERGY CENTER	6/18/2013	2 Combined Cycle Combustion Turbines-Mitsubishi, without duct burners	Natural Gas	47917	MMSCF/rolling 12-MO	Two Mitsubishi 2932 MMBtu/H combined cycle combustion turbines, both with 300 MMBtu/H duct burners, with dry low NOx combustors, SCR, and catalytic oxidizer. Will install either 2 Siemens or 2 Mitsubishi, not both (not determined). Short term limits are different with and without duct burners. This process without duct burners.	selective catalytic reduction (SCR); dry low NOx combustors; lean fuel technology	22.6	lb/hr		94.8	T/YR	PER ROLLING 12 MONTHS	2	PPM	PPMVD AT 15% O2
*OH-0356	DUKE ENERGY HANGING ROCK ENERGY	12/18/2012	Turbines (4) (model GE 7FA) Duct Burners Off	NATURAL GAS	172	MW	Four GE 7FA combined cycle turbines, dry low NOx burners and selective catalytic reduction. These limits are for each of the 4 turbines individually, while operating with the duct burners off. This permit is a modification to RBL OH-0252 to remove hourly restrictions on duct burners.	DRY LOW NOX COMBUSTION TECHNOLOGY AND Selective Catalytic Reduction	21.1	lb/hr		120.9	T/YR	PER ROLLING 12 MONTHS	3	PPM	PPMVD AT 15% O2 ON 3-H BLOCK AVERAGE
OK-0117	PSO SOUTHWESTERN POWER PLT	2/9/2007	GAS-FIRED TURBINES					DRY LOW NOX	9	PPMVD		0					
OK-0129	CHOUTEAU POWER PLANT	1/23/2009	COMBINED CYCLE COGENERATION @25MW	NATURAL GAS	1882	MMBTU/H	SIEMENS V84.3A	SCR AND DRY LOW-NOX	2	PPMVD	1-H AVG @ 15% O2	15.25	lb/hr	1-H AVG	0		
OR-0048	CARTY PLANT	12/29/2010	COMBINED CYCLE NATURAL GAS-FIRED ELECTRIC GENERATING UNIT	NATURAL GAS	2866	MMBTU/H		SELECTIVE CATALYTIC REDUCTION (SCR)	2	PPMVD	3-HOUR ROLLING	0			0		
*PA-0291	HICKORY RUN ENERGY STATION	4/23/2013	COMBINED CYCLE UNITS #1 and #2	Natural Gas	3.4	MMCF/HR	The Permittee shall select and install any of the turbine options listed below (or newer versions of these turbines if the Department determines that such newer versions achieve equivalent or better emissions rates and exhaust parameters) 1. General Electric 7FA (GE 7FA) 2. Siemens SGT6-5000F (Siemens F) 3. Mitsubishi M501G (Mitsubishi G) 4. Siemens SGT6-8000H (Siemens H) The emissions listed are for the Siemens SGT6-8000H unit.	SCR	2	PPMVD	WITH OR WITHOUT DUCT BURNER	17.25	T/YR	INCLUDING START UP AND SHUT DOWN	0		
*PA-0296	BERKS HOLLOW ENERGY ASSOC LLC/ONTARIO/NEE CITY PUBLIC SERVICE JK SPRUCE ELECTRIC GENERATING UNIT 2	12/17/2013	Turbine, Combined Cycle, #1 and #2	Natural Gas	3046	MMBTU/hr	Equipped with SCR and Oxidation Catalyst	SCR	131.6	T/YR	12-MONTH ROLLING TOTAL	0			0		
TX-0516	PATILLO BRANCH POWER PLANT	12/28/2005	SPRUCE POWER GENERATOR UNIT NO 2						1600	lb/hr		1752	T/YR		0		
TX-0546		6/17/2009	ELECTRICITY GENERATION	NATURAL GAS	350	MW		SELECTIVE CATALYTIC REDUCTION	2	PPMVD	@ 15% O2 24-HR ROLLING AVG	0			0		
TX-0590	KING POWER STATION	8/5/2010	Turbine	natural gas	1350	MW	Each turbine/HRSG will be designed to output 350 MW. TURBINES BEING CONSIDERED FOR THE PROJECT ARE GE 7FA, GE 7FB, AND SIEMENS SGT6-5000F. The plant will be designed to generate 1,350 nominal megawatts of power. There are two configuration scenarios: either four Siemens SGT6-5000F CTGs in combined-cycle mode (Scenario A) or four GE Frame 7FA CTGs in combined cycle mode (Scenario B). Scenario B also includes one or two auxiliary boilers. (2) GE7FA at 195 MW each. (1) steam turbine at 200 MW. Each turbine is equipped with an unfired heat recovery steam generator (HRSG), which provides steam for the steam turbine.	DLN burners and SCR	2	PPMVD	1-HOUR AVERAGE	0			0		
TX-0600	THOMAS C. FERGUSON POWER PLANT	9/1/2011	Natural gas-fired turbines	natural gas	390	MW		Dry low NOx burners and Selective Catalytic Reduction	2	PPMVD	ROLLING 24-HR AT 15% OXYGEN	0			0		
TX-0620	ES JOSLIN POWER PLANT	9/12/2012	Combined cycle gas turbine	natural gas	195	MW	The three combustion turbine generators (CTG) will be the General Electric 7FA, each with a maximum base-load electric power output of approximately 195 megawatts (MW). The steam turbine is rated at approximately 235 MW. This project also includes the installation of two emergency generators, one fire water pump, and auxiliary equipment. No duct burners.	Selective catalytic reduction	2	PPMVD	@15% O2, 24-HR ROLLING AVG	0			0		
*TX-0660	FGE TEXAS POWER I AND FGE TEXAS POWER II	3/24/2014	Alstom Turbine	Natural Gas	230.7	MW	Four (4) Alstom GT24 CTGs, each with a HRSG and DBs, max design capacity 409 MMBtu/hr	Selective catalytic reduction	2	PPMVD	CORRECTED TO 15% O2, ROLLING 24 HR AVE	0			0		
*TX-0678	FREEMONT LNG PRETREATMENT FACILITY	7/16/2014	Combustion Turbine	natural gas	87	MW	The exhaust heat from the turbine will be used to heat a heating medium which is used to regenerate rich amine from the acid gas removal system.	Selective Catalytic Reduction	2	PPMVD	15 @ O2, 3 HOUR ROLLING AVERAGE	0			0		
*TX-0689	CEDAR BAYOU ELECTRIC GENERATION STATION	8/29/2014	Combined cycle natural gas turbines	Natural Gas	225	MW		DLN, SCR	2	PPMVD	24HR ROLLING AVG	0			0		
*TX-0698	BAYPORT COMPLEX	9/5/2013	(4) cogeneration turbines	natural gas	90	MW	(4) GE 7EA turbines providing power and process steam	DLN and Closed Loop Emissions Controls (CLEC)	5	PPMVD	@15% O2, 3-HR ROLLING AVERAGE	0			0		
*TX-0709	SAND HILL ENERGY CENTER	9/13/2013	Natural gas-fired combined cycle turbines	Natural Gas	173.9	MW		SCR	2	PPMVD	24HR ROLLING AVG	0			0		
*TX-0712	TRINIDAD GENERATING FACILITY	11/20/2014	combined cycle turbine	natural gas	497	MW	The facility will consist of a Mitsubishi Heavy Industries (MHI) J model gas fired combustion turbine normally rated at 497 megawatts (MW) equipped with a HRSG and DB with a maximum design capacity of 402 million British thermal units per hour (MMBTU/hr). The gross nominal output of the CTG with HRSG and DB is 530 MW.	Selective Catalytic Reduction	2	PPMVD	@15% O2, 24-HR ROLLING AVERAGE	0			0		
*TX-0730	COLORADO BEND ENERGY CENTER	4/1/2015	Combined-cycle gas turbine electric generating facility	natural gas	1100	MW	combined cycle power plant that uses two combustion turbines and one steam turbine, model GE 7HA.02	SCR and oxidation catalyst	2	PPMVD	24-HR AVERAGE	0			0		
VA-0315	WARREN COUNTY POWER PLANT - DOMINION	12/17/2010	COMBINED CYCLE TURBINE & DUCT BURNER, 3	Natural Gas	2996	MMBTU/H	Emissions are for one of three units (Mitsubishi natural gas-fired combustion turbine (CT) generator, Model M501 GAC).	Two-stage, lean pre-mix dry low-NOx combustor and a selective catalytic reduction (SCR) control system using ammonia injection.	2	PPMVD	ONE HOUR AVERAGE	25.3	lb/hr	ONE HOUR AVERAGE	0		
*VA-0321	BRUNSWICK COUNTY POWER STATION	3/12/2013	COMBUSTION TURBINE GENERATORS, (3)	Natural Gas	3442	MMBTU/H	Three (3) Mitsubishi M501 GAC combustion turbine generators with HRSG duct burners (natural gas-fired).	Selective catalytic reduction and ultra low NOx burners.	2	PPMVD @ 15% O2	1 H AVG	0			0		

**Table D-A-2**  
**Nitrogen Oxides (NOx) RBL Search - Combustion Turbines Firing Natural Gas (Without Duct Burning)**  
**Invenery, LLC - Allegheny County Energy Center Project**

RBL CID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
*VA-0322	GREEN ENERGY PARTNERS/ STONEWALL, LLC	4/30/2013	Large combustion turbines (<gt;25MW) CCT1 and CCT2	Natural Gas	2.23	MMBTU/hr	Throughput and Units above are for the GEP7.05. Siemens SGT5-5000F5. Throughput: 2.260 MMBTU/hr	Selective Catalytic Reduction (SCR), with ammonia injection and dry low NOx combustion.	0			0			0		
*WY-0070	CHEYENNE PRAIRIE GENERATING STATION	8/28/2012	Combined Cycle Turbine (EP01)	Natural Gas	40	MW		SCR	3	PPMVD	1-HOUR	4.6	lb/hr	30-DAY ROLLING AVERAGE	25.5		T/YR
*WY-0070	CHEYENNE PRAIRIE GENERATING STATION	8/28/2012	Combined Cycle Turbine (EP02)	Natural Gas	40	MW		SCR	3	PPMVD	1-HOUR	4.6	lb/hr	30-DAY ROLLING AVERAGE	25.5		T/YR
	Astoria Energy LLC		Combustion Turbine	Natural Gas	1000	MW		SCR/Low NOx Burners	2	PPMVD	3-hour block average; Duct Burners Off	15.6	lb/hr	3-hour block average; Duct Burners Off			
	Catoctin Power LLC		Combustion Turbine	Natural Gas	170	MW		Pipeline quality low sulfur NG; DLN combustion design; Low NOx burners; SCR	2	PPMVD	Duct Burners Off						
	Footprint Power Salem Harbor Development LP		Combustion Turbine	Natural Gas	346	MW		SCR/Low NOx Burners	17	lb/hr	1-hr average; Duct Burners Off	0.0074	lb/MMBtu	1-hr average; Duct Burners Off			
	Footprint Power Salem Harbor Development LP		Combustion Turbine	Natural Gas	346	MW		SCR/Low NOx Burners	2	PPMVD	1-hr average; Duct Burners Off	0.051	lb/MW-hr	1-hr average; Duct Burners Off			
	Kalama Energy Center		Combustion Turbine	Natural Gas	2247	MMBTU/hr		SCR	2	PPMVD	1-hr average	18.5	lb/hr	1-hr average			
	Kalama Energy Center		Combustion Turbine	Natural Gas	2247	MMBTU/hr		SCR	15	PPMVD	30-day average	102.4	T/YR	12-mo rolling			
	GenCom Middletown LLC		Combustion Turbine	Natural Gas	474.9	MMBTU/hr			2.5	PPMVD							
	PacifiCorp Energy		Block 1 CT	Natural Gas					2	PPMVD	3-hour	14.9	lb/hr				
	PacifiCorp Energy		Block 2 CT	Natural Gas	629	MW			2	PPMVD	3-hour	14.9	lb/hr				
	Pioneer Valley		Combustion Turbine	Natural Gas	387	MW			2	PPMVD	1-hr average						
	Pioneer Valley		Combustion Turbine	Natural Gas	387	MW			40	PPMVD							
	Russell City Energy Company, LLC		Combustion Turbine	Natural Gas	2038.6	MMBTU/hr			2	PPMVD	1-hr average						
	Sevier Power Company Power Plant		Combustion Turbine	Natural Gas	580	MW			2	PPMVD	3-hr average						
	CPV Valley Energy Center Wawayanda, NY			Natural Gas	630	MW			2	PPMVD	3-hr average						
	Woodbridge Energy Center (CPV Shore, LLC)			Natural Gas	2307	MMBTU/hr			2	PPMVD							
	PA STATE UNIV/UNIV PARK CAMPUS		COMBINED HEAT AND POWER DUAL-FIRED COMBUSTION TURBINE	Natural Gas	86.29	MMBTU/hr			15	PPMVD							
	Hammel Station LLC		Combustion Turbine	Natural Gas	2254	MMBTU/hr			2	PPMVD		18.4	lb/hr				
	Cricket Valley Energy Center		Combustion Turbine	Natural Gas	1000	MW			2	PPMVD	1-hr average						
	Effingham County Power		Combustion Turbine	Natural Gas	180	MW			2	PPMVD	3-hr average						
	Gibson County Generation, LLC		Combustion Turbine	Natural Gas	417	MW			2	PPMVD	24-hr average	0.0073	lb/MMBtu				
	Pioneer Valley Energy Center		Combustion Turbine	Natural Gas	2542	MMBTU/hr			2	PPMVD		20.2	lb/hr				
	McDonough-Atkinson Steam-Electric Generating Plant			Natural Gas					6	PPMVD	30 day rolling average						
	Russell City Energy Company, LLC		Combustion Turbine	Natural Gas	2038.6	MMBTU/hr			2	PPMVD	1-hour	16.5	lb/hr				
	Tenaska Partners LLC		Combustion Turbine	Natural Gas	3147	MMBTU/hr			2	PPMVD		26.5	lb/hr				
	UGI Development Co/ Hunlock Creek		Combustion Turbine	Natural Gas	471.2	MMBTU/hr			2.5	PPMVD							
	Hawkeye Generating, LLC			Natural Gas	615	MW			0.011	lb/MMBtu	3-hr rolling	185.64	T/YR				
	Hess Newark Energy Center		Combustion Turbine	Natural Gas	2320	MMBTU/hr			2	PPMVD	3-hr rolling	0.0073	lb/MMBtu				
	York Energy Center Block 1				1574	MMBTU/hr			2	PPMVD	3-hour average, rolling by 1-hour						
	York Energy Center Block 2	6/15/2015			2512.5	MMBTU/hr	firing NG without duct burner		2	PPMVD	3-hour block average; average of 3 test runs						
	Shell Chemical Appalachia/Petrochemicals Complex	6/18/2015			664	MMBTU/hr	each turbine/duct burner		2	PPMVD	1-hour average	lb/hr					
	Calpine Bethlehem Energy Center				122	MW			2.5	PPMVD							
	Liberty Electric Power, LLC				1954	MMBTU/hr	Without DB		3.5	PPMVD							

**Table D-A-3  
Carbon Monoxide (CO) RBLCL Search - Combustion Turbines Firing Natural Gas (With Duct Burning)  
Invenergy, LLC - Allegheny County Energy Center Project**

RBLCL ID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
CT-0161	KILLINGLY ENERGY CENTER	6/30/2017	Natural Gas w/Duct Firing	Natural Gas	2639	MMBTU/hr	Duct burner MRC is 946 MMBtu/hr	Oxidation Catalyst	1.7	LB/MMBTU	1 HOUR BLOCK	0			0		
LA-0313	ST. CHARLES POWER STATION	8/31/2016	SCPS Combined Cycle Unit 1A	Natural Gas	3625	MMBTU/hr		Catalytic Oxidation and good combustion practices during normal operations, and good combustion practices during startup/shutdown operations.	125.21	LB/H	HOURLY MAXIMUM	388.55	T/YR	ANNUAL MAXIMUM	2	PPM@15% O2	24-HOUR ROLLING AVERAGE
LA-0313	ST. CHARLES POWER STATION	8/31/2016	SCPS Combined Cycle Unit 1B	Natural Gas	3625	MMBTU/hr		Catalytic oxidation and good combustion practices during normal operations, and good combustion practices during startup/shutdown operations.	125.21	LB/H	HOURLY MAXIMUM	388.55	T/YR	ANNUAL MAXIMUM	2	PPM@15% O2	24-HOURLY ROLLING AVERAGE
*MI-0432	NEW COVERT GENERATING FACILITY	7/30/2018	FG-TURBID61-3 (3 combined cycle combustion turbine and heat recovery steam generator trains)	Natural gas	1230	MW	Three (3) combined-cycle combustion turbine (CT) / heat recovery steam generator (HRSG) trains. Each CT is a natural gas fired Mitsubishi model 501G, equipped with dry low NOx combustor and inlet air evaporative cooling. Each HRSG includes a natural gas fired duct burner with a 256 MMBtu/hr heat input capacity and a dry low NOx burner.	Oxidation catalyst technology and good combustion practices.	2	PPMVD	EACH CT/HRSG TRAIN; 24-HR ROLL AVG	357	T/YR	EACH CT/HRSG TRAIN; 12-MO ROLL TIME PER.	0		
*MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUCTGHRSG (South Plant): A combined cycle natural gas-fired combustion turbine generator with heat recovery steam generator.	Natural gas	500	MW	A combined-cycle natural gas-fired combustion turbine generator (CTG) with heat recovery steam generator (HRSG) in a 1x1 configuration with a steam turbine generator (STG) for a nominal 500 MW electricity production. The CTG is a H-class turbine with a rating of 3,080 MMBTU/H (HHV). The HRSG is equipped with a natural gas-fired duct burner rated at 755 MMBTU/H (HHV) at ISO conditions to provide heat for additional steam production. The HRSG is not capable of operating independently from the CTG. The CTG/HRSG is equipped with dry low NOx burner (DLNB), SCR, and an oxidation catalyst.	Oxidation catalyst technology and good combustion practices.	4	PPMV	AT 15%O2; 240HR ROLL AVG; NOT S.S.	788.6	LB/H	OPERATING HR DURING STARTUP OR SHUTDOWN	0		
*MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUCTGHRSG (North Plant): A combined-cycle natural gas-fired combustion turbine generator with heat recovery steam generator.	Natural gas	500	MW	Nominal 500 MW electricity production. Turbine rating of 3,080 MMBTU/hr (HHV) and HRSG duct burner rating of 755 MMBTU/hr (HHV).  A combined-cycle natural gas-fired combustion turbine generator (CTG) with heat recovery steam generator (HRSG) in a 1x1 configuration with a steam turbine generator (STG) for a nominal 500 MW electricity production. The CTG is a H-class turbine with a rating of 3,080 MMBTU/hr (HHV). The HRSG is equipped with a natural gas-fired duct burner rated at 755 MMBTU/hr (HHV) at ISO conditions to provide heat for additional steam production. The HRSG is not capable of operating independently from the CTG. The CTG/HRSG is equipped with dry low NOx burner (DLNB), SCR, and an oxidation catalyst.	Oxidation catalyst technology and good combustion practices.	4	PPMVD	AT 15%O2; 24-H ROLL AVG; NOT INCL ST/SH	788.6	LB/H	OPERATING HR DURING STARTUP OR SHUTDOWN	0		
NI-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	Combined Cycle Combustion Turbine firing Natural Gas with Duct Burner	natural gas	4000	h/yr	1. ONE GENERAL ELECTRIC (GE) 7HA.02 CCCT NOMINALLY RATED AT 380 MW AT ISO CONDITIONS WITHOUT DUCT FIRING WITH A MAXIMUM HEAT INPUT RATE OF: 0 3,462 MMBTU/HR(HHV) AT (0) DEGREES F, 100% LOAD COMBUSTING NATURAL GAS 0 3,613 MMBTU/HR(HHV) AT (0) DEGREES F, 100% LOAD COMBUSTING ULSD WHICH WILL BE THE BACKUP FUEL OTHER EQUIPMENT INCLUDES: 2. ONE NATURAL GAS-FIRED DUCT BURNER (MAXIMUM HEAT INPUT OF 599 MMBTU/HR(HHV)) FOR SUPPLEMENTAL FIRING. 3. ONE 97.5 MMBTU/HR(HHV) NATURAL GAS FIRED AUXILIARY BOILER, EQUIPPED WITH LOW NOX BURNERS AND FLUE GAS RECIRCULATION FOR CONTROL OF NOX EMISSIONS. 4. ONE 2.25 MMBTU/HR(HHV), 327 BRAKE HORSEPOWER, ULSD FIRED EMERGENCY FIRE PUMP. 5. ONE 14.4 MMBTU/HR(HHV), APPROXIMATELY 1,500 KW ULSD FIRED EMERGENCY GENERATOR; AND 6. ONE 8-CELL, 124,800 GALLON PER MINUTE (GPM) MECHANICAL INDUCED DRAFT COOLING TOWER.	Oxidation Catalyst and good combustion practices	2	PPMVD@15%O2	3 H ROLLING AV BASED ON ONE H BLOCK AV	18.1	LB/H	AV OF THREE ONE H STACK TESTS EVERY 5 YR	0		
*PA-0306	PARTNERS-WESTMORELAND GEN FAC	2/12/2016	Large combustion turbine	Natural Gas	0		This process entry is for operations with the duct burner. Limits entered are for each turbine. Emission limits are for each turbine operating with duct burner and do not include startup/shutdown emissions. Tons per year limits is a cumulative value for all three CCCT. CEMS for NOx, CO, and O2. Each CCCT and duct burner have 5 operational scenarios: 1 CCCT with duct burner fired - fueled by NG only 2 CCCT with duct burner fired - fueled by NG blend with ethane 3 CCCT without duct burner fired - fueled by NG only 4 CCCT without duct burner fired - fueled by NG blend with ethane 5 CCCT without duct burner fired - fueled by ULSD (Limited to emergency use only)	Oxidation Catalyst and good combustion practice	15.9	LB/HR	3 HR AVERAGE	318.6	TPY	12 MONTH ROLLING BASIS	0		
*PA-0310	CPV FAIRVIEW ENERGY CENTER	9/2/2016	Combustion turbine and HRSG with duct burner NG only	Natural Gas	3338	MMBTU/hr		Oxidation catalyst operated at all steady state operating loads and good combustion practices	2	PPMDV @ 15% O2		84.9	TONS	YEAR	0		
TN-0162	JOHNSONVILLE COGENERATION	4/19/2016	Natural Gas-Fired Combustion Turbine with HRSG	Natural Gas	1339	MMBTU/hr	Turbine throughput is 1019.7 MMBtu/hr when burning natural gas and 1083.7 MMBtu/hr when burning No. 2 oil. Duct burner throughput is 319.3 MMBtu/hr. Duct burner firing will occur during natural gas combustion only.	Good combustion design and practices, oxidation catalyst	2	PPMVD @ 15% O2	30 UNIT- OPERATING-DAY MOVING AVERAGE	10	PPMVD @ 15% O2	15 UNIT- OPERATING-DAY MOVING AVERAGE	0		
TX-0819	GAINES COUNTY POWER PLANT	4/28/2017	Combined Cycle Turbine with Heat Recovery Steam Generator, fired Duct Burners, and Steam Turbine Generator	NATURAL GAS	426	MW	Four Siemens SGT6-5000F5 natural gas fired combustion turbines with HRSGs and Steam Turbine Generators	Selective Catalytic Reduction (SCR) and Dry Low NOx burners	2	PPMVD	15% O2 3-H AVG	0			0		
*VA-0325	GREENSVILLE POWER STATION	6/17/2016	COMBUSTION TURBINE GENERATOR WITH DUCT-FIRED HEAT RECOVERY STEAM GENERATORS (3)	natural gas	3227	MMBTU/HR	3227 MMBTU/HR CT with 500 MMBTU/HR Duct Burner, 3 on 1 configuration.	Oxidation Catalyst	1.6	PPMVD	3 HR AVG	286	TONS/YR	12 MO ROLLING AVG	0		
*WV-0029	HARRISON COUNTY POWER PLANT	3/27/2018	GE 7HA.02 Turbine 2 COMBUSTION TURBINES	Natural Gas	3496.2	mmbtu/hr	Nominal 640 mWe All emission limits steady-state and include 1000 mmbtu/hr Duct Burner in operation Short Term startup and shutdown limits in lb/event given in permit.	Oxidation Catalyst, Good Combustion Practices	20	LB/HR	1-HOUR AVERAGE AT 15% O2, 3-HR AVG	124	TONS/YEAR		2	PPM	
CA-1144	PLYTHE ENERGY PROJECT II	4/25/2007	COMBUSTION TURBINE #2 (NORMAL OPERATION, WITH DUCT BURNING)	NATURAL GAS	170	MW	EACH TURBINE WILL PRODUCE 170 MW		4	PPMVD		18	lb/hr		0		
CA-1191	VICTORVILLE 2 HYBRID POWER PROJECT	3/11/2010		NATURAL GAS	154	MW	154 MW Combined Cycle Combustion Turbine Generator	OXIDATION CATALYST SYSTEM	3	PPMVD	@15% O2, 1-HR AVG (W/ DUCT BURNING)	13.35	lb/hr	1-HR AVG (W/ DUCT BURNING)	0		

**Table D-A-3  
Carbon Monoxide (CO) RBLC Search - Combustion Turbines Firing Natural Gas (With Duct Burning)  
Invenergy, LLC - Allegheny County Energy Center Project**

RBLCD	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
CA-1192	AVENAL ENERGY PROJECT	6/21/2011	COMBUSTION TURBINE #1 (NORMAL OPERATION, WITH DUCT BURNING)	NATURAL GAS	180	MW		OXIDATION CATALYST SYSTEM	2	PPMVD	@15% O2, 1-HR AVG	10	lb/hr	1-HR AVG	0		
CA-1195	ELK HILLS POWER LLC	1/12/2006	COMBUSTION TURBINE GENERATOR, 2 units (Normal Operation)	NATURAL GAS	166	MW	Each CTG system will generate 166 MW under design ambient conditions with steam power augmentation from the duct burners, and 153 MW without steam augmentation.	SCR OR SCONOX	4	PPMVD	@15% O2, 1-HR AVG	12.5	lb/hr	1-HR AVG	0		
CA-1209	HIGH DESERT POWER PROJECT	3/11/2010	COMBUSTION TURBINE GENERATORS (NORMAL OPERATION)	NATURAL GAS	190	MW	THREE (3) COMBUSTION TURBINE GENERATORS AT 190 MW EACH AND EQUIPPED WITH A 160 MMBTU/HR DUCT BURNER AND HRSG	OXIDATION CATALYST SYSTEM	4	PPMVD	@15% O2, 24-HR AVG	17.53	lb/hr	24-HR AVG	0		
CA-1211	COLUSA GENERATING STATION	3/11/2011	COMBUSTION TURBINES (NORMAL OPERATION)	NATURAL GAS	172	MW	TWO (2) NATURAL GAS FIRED TURBINES AT 172 MW EACH. BOTH TURBINES EQUIPPED WITH A 688 MMBTU/HR DUCT BURNER AND HRSG.	CATALYTIC OXIDATION SYSTEM	3	PPMVD	@15% O2, 3-HR ROLLING AVG	17.9	lb/hr	3-HR ROLLING AVG	0		
CO-0056	ROCKY MOUNTAIN ENERGY CENTER, LLC	5/2/2006	NATURAL-GAS FIRED, COMBINED-CYCLE TURBINE	NATURAL GAS	300	MW	ONE NEW COMBINED-CYCLE TURBINE IS BEING ADDED TO AN EXISTING FACILITY.	USE GOOD COMBUSTION CONTROL PRACTICES AND CATALYTIC OXIDATION.	3	PPM @ 15% O2		0.044	LB/MMBTU	MONTHLY AV	3	PPM @ 15 O2	
CT-0151	KLEEN ENERGY SYSTEMS, LLC	2/25/2008	SIEMENS SGT6-5000F COMBUSTION TURBINE #1 AND #2 (NATURAL GAS FIRED) WITH 445 MMBTU/HR NATURAL GAS DUCT BURNER	NATURAL GAS	2.1	MMCF/H	THROUGHPUT IS FOR TURBINE ONLY WHEN FIRING NATURAL GAS TURBINE: 2136 MMBTU/HR (2.095 MMCF/HR) DUCT BURNER: 445 MMBTU/HR (0.436 MMCF/HR) EMISSION RATES ARE FOR EACH COMBUSTION TURBINE FIRING NATURAL GAS, NOT COMBINED 500 MMBTU/HR Gas Turbine (Model: GE LM6000) rated at 52 MW and 155 MMBTU/HR Heat Recovery Steam Generator rated at 18 MW. The unit is required to operate a certified CEMS and COMS.	CO CATALYST	4.3	lb/hr	W/OUT DUCT BURNER	8.4	lb/hr	W/ DUCT BURNER	0.9	PPMVD @ 15% O2	1 HR-BLOCK (W/OUT DUCT BURNER)
*DE-0023	NRG ENERGY CENTER DOVER	10/31/2012	UNIT 2- KD1	Natural Gas	655	MMBTU/H		Oxidation Catalyst System	19.54	lb/hr	1 HOUR AVERAGE	0.032	LB/MMBTU	1 HOUR AVERAGE	0		
FL-0263	FPL TURKEY POINT POWER PLANT	2/8/2005	170 MW COMBUSTION TURBINE, 4 UNITS	NATURAL GAS	170	MW	GENERATING CAPACITY: EACH OF THE FOUR GAS TURBINES HAS A NOMINAL GENERATING CAPACITY OF 170 MW FOR GAS FIRING (180 MW FOR OIL FIRING). EACH OF THE FOUR HEAT RECOVERY STEAM GENERATORS (HRSGS) PROVIDES STEAM TO THE SINGLE STEAM TURBINE ELECTRICAL GENERATOR, WHICH HAS A NOMINAL CAPACITY OF 470 MW. THE TOTAL NOMINAL GENERATING CAPACITY OF THE 4-ON-1 COMBINED CYCLE UNIT IS 1150 MW.  FUELS: EACH GAS TURBINE WILL FIRE NATURAL GAS AS THE PRIMARY FUEL AND ULTRA LOW SULFUR (0.0015% SULFUR) DISTILLATE OIL AS A RESTRICTED ALTERNATE FUEL. EMISSIONS OF ALL POLLUTANTS INCREASE WITH THE FIRING OF OIL. THE APPLICANT REQUESTS 500 HOURS PER YEAR PER GAS TURBINE (OR EQUIVALENT) FOR OIL FIRING.  MODES OF OPERATION: STANDARD NORMAL OPERATION, WITH DUCT BURNER, POWER AUGMENTATION AND PEAKING.	CO WILL BE MINIMIZED BY THE EFFICIENT COMBUSTION OF NATURAL GAS AND DISTILLATE OIL AT HIGH TEMPERATURES	8	PPMVD @ 15% O2	24-HR AVG. TIME (CT & DUCT BURNER)	4.1	PPMVD @ 15% O2	STACK TEST (CT NORMAL OPERATION)	7.6	PPM @ 15% O2	STACK TEST (CT & DUCT BURNER)
FL-0265	HINES POWER BLOCK 4	6/8/2005	COMBINED CYCLE TURBINE	NATURAL GAS	530	MW		GOOD COMBUSTION	8	PPM	NATURAL GAS	12	PPM	OIL	8	PPM @ 15% O2	
FL-0285	PROGRESS BARTOW POWER PLANT	1/26/2007	COMBINED CYCLE COMBUSTION TURBINE SYSTEM (4-ON-1)	NATURAL GAS	1972	MMBTU/H	1876 MMBTU/HR WHEN FIRING DISTILLATE FUEL OIL. THE SYSTEM NOMINAL CAPACITY 1280 MW. EACH UNIT NOMINAL CAPACITY 215 MW (ISO) WITH DUCT-FIRED HEAT RECOVERY STEAM GENERATOR. 2117 MMBTU/HR FUEL OIL.	GOOD COMBUSTION	8	PPMVD	24-HR BLOCK AVERAGE CEMS	0			0		
FL-0286	FPL WEST COUNTY ENERGY CENTER	1/10/2007	COMBINED CYCLE COMBUSTION GAS TURBINES - 6 UNITS	NATURAL GAS	2333	MMBTU/H	EACH COMBINED CYCLE UNIT SYSTEM (TWO & 3-ON-1 & 3-ON-1 & 3-ON-1) WILL CONSIST OF: THREE NOMINAL 250 MEGAWATT MODEL 501G GAS TURBINE-ELECTRICAL GENERATOR SETS WITH EVAPORATIVE INLET COOLING SYSTEMS. THREE SUPPLEMENTARY-FIRED HEAT RECOVERY STEAM GENERATORS (HRSGs) WITH SCR REACTORS. ONE NOMINAL 428 MMBTU/HOUR (LHV) GAS-FIRED DUCT BURNER LOCATED WITHIN EACH OF THE THREE HRSGs; THREE 149 FEET EXHAUST STACKS, ONE 26 CELL MECHANICAL DRAFT COOLING TOWER; AND A COMMON NOMINAL 500 MW STEAM-ELECTRICAL GENERATOR.		8	PPMVD @ 15% O2	24-HR	0			0		
FL-0303	FPL WEST COUNTY ENERGY CENTER UNIT 3	7/30/2008	THREE NOMINAL 250 MW CTG (EACH WITH SUPPLEMENTARY-FIRED HRSG)	NATURAL GAS	2333	MMBTU/H	COMBINED CYCLE UNIT 3 WILL CONSIST OF: THREE NOMINAL 250 MW COMBUSTION TURBINE-ELECTRICAL GENERATORS (CTG) WITH EVAPORATIVE INLET COOLING SYSTEMS; THREE SUPPLEMENTARY-FIRED HEAT RECOVERY STEAM GENERATORS (HRSG) WITH SELECTIVE CATALYTIC REDUCTION (SCR) REACTORS AND A COMMON NOMINAL 500 MW STEAM-ELECTRICAL GENERATOR.	GOOD COMBUSTION	6	PPMVD (GAS)	12-MONTH	8	PPMVD (OIL)	24-HOUR	0		
FL-0304	CANE ISLAND POWER PARK	9/8/2008	300 MW COMBINED CYCLE COMBUSTION TURBINE	NATURAL GAS	1860	MMBTU/H		GOOD COMBUSTION PRACTICES	6	PPMVD	12-MONTH	8	PPMVD	24-HR	0		
GA-0127	PLANT MCDONOUGH COMBINED CYCLE	1/7/2008	COMBINED CYCLE COMBUSTION TURBINE	NATURAL GAS	254	MW	6 TURBINES, 254 MW EACH (NOT INCLUDING STEAM RECOVERY). LIMITS ARE FOR EACH TURBINE (MITSUBISHI MODEL M501G). BACKUP FUEL FOR TWO TURBINES IS ULTRA-LOW SULFUR FUEL OIL.	OXIDATION CATALYST	1.8	PPMVD @ 15% O2	3-HOUR	0			0		
*IA-0107	MARSHALLTOWN GENERATING STATION	4/14/2014	Combustion turbine #1 - combined cycle	natural gas	2258	mmBtu/hr	Four GE 7FA combined cycle turbines, dry low NOx burners and selective catalytic reduction. These limits are for each of the 4 turbines individually, while operating with the duct burners on. This permit is a modification to RBLC OH-0252 to remove hourly restrictions on duct burners.	catalytic oxidizer	2	PPM	30-DAY ROLLING AVG. @15% O2	552.4	TON/YR	12-MONTH ROLLING TOTAL	0		
ID-0018	LANGLEY GULCH POWER PLANT	6/25/2010	COMBUSTION TURBINE, COMBINED CYCLE W/ DUCT BURNER	NATURAL GAS (ONLY)	2375.28	MMBTU/H	SIEMENS SGT6-5000F COMBUSTION TURBINE (NGCT, CCGT) FOR ELECTRICAL GENERATION, NOMINAL 269 MW AND 2.1466 MMSCF/HR	DRY LOW NOX (DLN), GOOD COMBUSTION PRACTICES (GCP)	2	PPMVD	3-HR ROLLING / 15% O2	24.5	PPMVD	3-HR ROLLING / 15% O2 DURING LL	2510	LB/H	1-HR / 15% O2 DURING SUSID
*IL-0112	NELSON ENERGY CENTER	12/28/2010	Electric Generation Facility	Natural Gas	220	MW each	Two combined cycle combustion turbines followed by HRSGs with capability for supplemental fuel firing in HRSG for each combustion turbine using duct burners.		5	PPMVD @ 15% O2		0			0		

**Table D-A-3  
Carbon Monoxide (CO) RBLC Search - Combustion Turbines Firing Natural Gas (With Duct Burning)  
Invenergy, LLC - Allegheny County Energy Center Project**

RBLCD	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
*IN-0158	ST. JOSEPH ENRGY CENTER, LLC	12/3/2012	FOUR (4) NATURAL GAS COMBINED CYCLE COMBUSTION TURBINES	NATURAL GAS	2300	MMBTU/H	EACH TURBINE IS EQUIPPED WITH DRY LOW NOX BURNERS, NATURAL GAS FIRED DUCT BURNERS, AND A HEAT RECOVERY STEAM GENERATOR IDENTIFIED AS HRSG#. NOX EMISSIONS CONTROLLED BY SELECTIVE CATALYTIC REDUCTION SYSTEMS (SCR) ALONG WITH CO AND VOC EMISSIONS CONTROLLED BY OXIDATION CATALYST SYSTEMS (CAT) IN EACH TURBINE. EACH STACK HAS CONTINUOUS EMISSIONS MONITORS FOR NOX AND CO. COMBINED NOMIAL POWER OUTPUT IS 1,350 MW. VISUAL INSPECTION FOR OPACITY ON A WEEKLY BASIS, STACK TESTS FOR PM, NOX, SO2, OPACITY, CO EMISSION POINTS GT-500, -600, -700, -800.	OXIDATION CATALYST	2	PPMVD	3 HOURS	0			0		
LA-0136	PLAQUEMINE COGENERATION FACILITY	7/23/2008	(4) GAS TURBINES/DUCT BURNERS	NATURAL GAS	2876	MMBTU/H		GOOD COMBUSTION PRACTICES	212.5	lb/hr	HOURLY MAXIMUM	625.8	T/YR	ANNUAL MAXIMUM	25	PPMVD @ 15% O2	ANNUAL AVERAGE
LA-0192	CRESCENT CITY POWER	6/6/2005	GAS TURBINES - 187 MW (2)	NATURAL GAS	2006	MMBTU/H		CO OXIDATION CATALYST AND GOOD COMBUSTION PRACTICES	17.7	lb/hr	HOURLY MAXIMUM	77.5	T/YR	ANNUAL MAXIMUM	4	PPM @ 15%O2	ANNUAL AVERAGE
LA-0224	ARSENAL HILL POWER PLANT	3/20/2008	TWO COMBINED CYCLE GAS TURBINES	NATURAL GAS	2110	MMBTU/H	CTG-1 TURBINE/DUCT BURNER (EQ7012) CTG-2 TURBINE/DUCT BURNER(EQ7013)	PROPER OPERATING PRACTICES	143.31	lb/hr	MAX	0			10	PPMVD@15%O2	ANNUAL AVERAGE
LA-0254	NINEMILE POINT ELECTRIC GENERATING PLANT	8/16/2011	COMBINED CYCLE TURBINE GENERATORS (UNITS 6A & 6B)	NATURAL GAS	7146	MMBTU/H	TURBINES ALSO PERMITTED TO BURN NO. 2 FUEL OIL AND ULTRA LOW SULFUR DIESEL.	OXIDATION CATALYST AND GOOD COMBUSTION PRACTICES	3	PPMVD @ 15% O2	HOURLY AVERAGE	0			3	PPMVD @ 15% O2	HOURLY AVERAGE
LA-0257	SABINE PASS LNG TERMINAL	12/6/2011	Combined Cycle Refrigeration Compressor Turbines (8)	natural gas	286	MMBTU/H	GE LM2500-G4	Good combustion practices and fueled by natural gas	43.6	lb/hr	HOURLY MAXIMUM	0			58.4	PPMV	AT 15% O2
*MA-0039	SALEM HARBOR STATION REDEVELOPMENT	1/30/2014	Combustion Turbine with Duct Burner	Natural Gas	2449	MMBTU/hr	two 315 MW (nominal) GE Energy 7F Series 5 Rapid Response Combined Cycle Combustion Turbines with Duct Burners and 31 MW (estimated) steam turbine generator.	oxidation catalyst	2	PPMVD@15% O2	DURING SS	0.0045	LB/MMBTU		0		
*MD-0041	CPV ST. CHARLES	4/23/2014	2 COMBINED-CYCLE COMBUSTION TURBINES	NATURAL GAS	725	MEGAWATT	TWO GENERAL ELECTRIC (GE) F-CLASS ADVANCED COMBINED CYCLE COMBUSTION TURBINES (CTS) WITH A NOMINAL GENERATING CAPACITY OF 725 MW, COUPLED WITH A HEAT RECOVERY STEAM GENERATOR (HRSG) EQUIPPED WITH DUCT BURNERS, DRY LOW-NOX BURNERS, SCR, OXIDATION CATALYST	OXIDATION CATALYST AND GOOD COMBUSTION PRACTICES	2	PPMVD @ 15% O2	3-HOUR BLOCK AVERAGE, EXCLUDING SUS/D	0			0		
MI-0366	BERRIEN ENERGY, LLC	4/1/2005	3 COMBUSTION TURBINES AND DUCT BURNERS	NATURAL GAS	1584	MMBTU/H	EACH TURBINE IS EQUIPPED WITH A HEAT RECOVERY STEAM GENERATOR (HRSG). EACH HRSG IS EQUIPPED WITH A NATURAL GAS FIRED DUCT BURNER (650 MMBTU/H). TOTAL NOMINAL PLAN GENERATING CAPACITY WITHOUT DUCT FIRING IS 800 MW. A MAX OUTPUT OF 1100 MW THROUGH SUPPLEMENTAL FIRING OF HRSGS.	CATALYTIC OXIDATION.	2	PPMDV @ 15% O2	3-HOUR BLOCK	165.5	T/YR		2	PPM @ 15% O2	
*MI-0402	SUMPTER POWER PLANT	11/17/2011	Combined cycle combustion turbine w/ HRSG	Natural gas	130	MW electrical output	This is a combined-cycle combustion turbine with a non-fired heat recovery steam generator (HRSG).		0.048	LB/MMBTU	24-HR ROLLING AVERAGE	53.6	lb/hr		0		
*MI-0405	MIDLAND COGENERATION VENTURE	4/23/2013	Natural gas fueled combined cycle combustion turbine generator (CTG) with HRSG	Natural gas	2237	MMBTU/H	Equipment is permitted as following flexible group (FG): FG-CTG1-2: Two natural gas fired CTGs with each turbine containing a heat recovery steam generator (HRSG) to operate in combined cycle. The two CTGs (with HRSG) are connected to one steam turbine generator. Each CTG is equipped with a dry low NOx (DLN) burner and a selective catalytic reduction (SCR) system.	Good combustion practices	9	PPM	EACH CTG; 24-H ROLLING AVG.	43.9	lb/hr		0		
*MI-0405	MIDLAND COGENERATION VENTURE	4/23/2013	Natural gas fueled combined cycle combustion turbine generators (CTG) with HRSG and duct burner (DB)	Natural gas	2486	MMBTU/H	This process is permitted in a flexible group format, identified in the permit as FG-CTG/DB1-2 and is for two natural gas fired CTGs with each turbine containing a heat recovery steam generator (HRSG) to operate in combined cycle. The two CTGs (with HRSG) are connected to one steam turbine generator. Each CTG is equipped with a dry low NOx (DLN) burner and a selective catalytic reduction (SCR) system. Additionally, the HRSG is operating with a natural gas fired duct burner for supplemental firing.	Good combustion practices	10.5	PPM	EACH CTG/DB; 24-H ROLLING AVG.	57.6	lb/hr		0		
*MI-0410	THETFORD GENERATING STATION	7/25/2013	FGCCA or FGCCB-4 nat. gas fired CTG w/ DB for HRSG	natural gas	2587	MMBTU/H heat input, each CTG	The throughput is 2,486 MMBTU/H for each CTG/DB. Natural gas fired CTG with DB for HRSG; 4 total.	Efficient combustion control plus catalytic oxidation system.	4	PPMV	24-H ROLL AVG DET. EACH H TURBINE OPERAT	3159	lb/hr		0		
*MI-0412	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	12/4/2013	FG-CTG/HRSG: 2 Combined cycle CTGs with HRSGs with duct burners	natural gas	647	MMBTU/H for each CTG/HRSG	Technology A (4 total) is 2587 MMBTU/H design heat input each CTG. Technology B (4 total) is 2688 MMBTU/H design heat input each CTG.	Oxidation catalyst technology and good combustion practices.	4	PPM	24-H ROLL AVG. NOT STARTUP/SHUT DOWN	5.31	lb/hr		0		
MN-0066	NORTHERN STATES POWER CO. DBA XCEL ENERGY - RIVERSIDE PLANT	5/16/2006	TURBINE, COMBINED CYCLE (2)	NATURAL GAS	1885	mmbtu/h	Permit was issued for either of two F Class turbine technologies with slight variations in emission rates. Applicant will select one technology. Installation is two separate CTG/HRSG trains driving one steam turbine electrical generator; Two 2X1 Blocks. Each CTG will be rated at 211 to 230 MW (gross) output and the station nominal generating capacity will be up to 1,400 MW.	GOOD COMBUSTION PRACTICES	10	PPMVD @ 15% O2	3-HR BLOCK	0			10	PPM @ 15% O2	
NC-0101	FORSYTH ENERGY PLANT	9/29/2005	TURBINE, COMBINED CYCLE, NATURAL GAS, (3)	NATURAL GAS	1844.3	MMBTU/H	This process is identified in the permit as FGCTG/HRSG; it is 2 combined cycle natural gas-fired combustion turbine generators (CTGs) with Heat Recovery Steam Generators (HRSGs) equipped with duct burners for supplemental firing (EUCTG/HRSG1 & EUCTG/HRSG2 in FGCTG/HRSG). The total hours for both units combined for startup and shutdown shall not exceed 635 hours per 12-month rolling time period. Each CTG/HRSG shall not exceed 647 MMBtu/hr on a fuel heat input basis.	GOOD COMBUSTION PRACTICES AND EFFICIENT PROCESS DESIGN.	11.6	PPM @ 15% O2	3-hour average	0			11.6	PPM @ 15% O2	
NC-0101	FORSYTH ENERGY PLANT	9/29/2005	TURBINE, COMBINED CYCLE, NAT GAS, 3	NATURAL GAS	1844.3	MMBTU/H	Each of these units have a natural gas-fired heat recovery steam generator and a natural gas-fired duct burner. Each CT combusts natural gas as the primary fuel and very low-sulfur No. 2 fuel oil as a backup fuel. The use of fuel oil is limited to 1,200 hours per year and only during the months of November through March, and is listed as a separate process. These units are listed as a combined source (all three units) for each type of fuel.	GOOD COMBUSTION PRACTICES AND EFFICIENT PROCESS DESIGN	25.9	PPM @ 15% O2	3-hr avg	0			25.9	PPM @ 15% O2	
NJ-0074	WEST DEPTFORD ENERGY	5/6/2009	TURBINE, COMBINED CYCLE	NATURAL GAS	17298	MMFT3/YR		CO OXIDATION CATALYST	0.01	LB/MMBTU	3 HR ROLLING AVERAGE	2	PPMVD@15%O2		0		
*NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITH DUCT BURNER - SIEMENS	Natural Gas	33691	MMCUbic FT PER YEAR	Natural Gas Usage <= 33,691 MMB <sup>3</sup> /3yr per 365 consecutive day period, rolling one day basis (per two Siemens turbines and two associated duct burners) The heat input rate of the Siemens turbine will be 2,356 MMBtu/hr(HHV) with a 62.1 duct burner MMBtu/hr(HHV).	Oxidation catalyst and use of only natural gas a clean burning fuel	2	PPMVD	3-HR ROLLING AVE BASED ON 1-HR BLOCK AVE	14	lb/hr		0		

**Table D-A-3  
Carbon Monoxide (CO) RBLC Search - Combustion Turbines Firing Natural Gas (With Duct Burning)  
Invenergy, LLC - Allegheny County Energy Center Project**

RBLCD	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
*NJ-0081	PSEG FOSSIL LLC SEAWARD GENERATING STATION	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITH DUCT BURNER - GENERAL ELECTRIC	Natural gas	33691	MMCU/yr.	Natural Gas Usage <= 33,691 MMB <sup>3</sup> /yr per 365 consecutive day period, rolling one day basis (per two turbines and two duct burners) The heat input rate of each General Electric combustion each turbine will be 2,312 MMBtu/hr(HHV) with a 164.4 MMBtu/hr duct burner This is a 427 MW Siemens Combined Cycle Turbine with duct burner Heat Input rate of the turbine = 2276 MMBtu/hr (HHV) Heat Input rate of the Duct burner= 777 MMBtu/hr(HHV)	CO Oxidation catalyst and good combustion practices and use of natural gas only as a clean burning fuel	2	PPMVD@15%O2	3-HR ROLLING AVERAGE BASED ON 1-HR BLOCK	11.1	lb/hr	AVERAGE OF THREE ONE HOUR TESTS	0		
*NJ-0082	WEST DEPTFORD ENERGY STATION	7/18/2014	Combined Cycle Combustion Turbine with Duct Burner	Natural Gas	20282	MMCF/YR	The fuel use of 20,282 MMCF/YR is for three turbines and three Duct burners.	Oxidation catalyst and use of natural gas as a clean burning fuel	1.5	PPMVD@15%O2	3-HR ROLLING AVE BASED ON 1-HR BLOCK	10.5	lb/hr	3-HR ROLLING AVE BASED ON 1-HR BLOCK	0		
NY-0095	CATHINES BELLPORT ENERGY CENTER	5/10/2006	COMBUSTION TURBINE	NATURAL GAS	2221	MMBTU/H	COMBINED CYCLE WITH DUCT FIRING UP TO 494 MMBTU/H	OXIDATION CATALYST	2	PPMVD@15%O2		0			0		
*OH-0352	OREGON CLEAN ENERGY CENTER	6/18/2013	2 Combined Cycle Combustion Turbines-Siemens, with duct burners	Natural Gas	51560	MMSCF/rolling 12-MO	Two Siemens 2932 MMBtu/H combined cycle combustion turbines , both with 300 MMBtu/H duct burners, with dry low NOx combustors, SCR, and catalytic oxidizer. Will install either 2 Siemens or 2Mitsubishi, not both (not determined). Short term limits are different with and without duct burners. This process with duct burners.	oxidation catalyst	13	lb/hr		72.2	T/YR	PER ROLLING 12 MONTHS	2	PPM	PPMVD AT 15% O2
*OH-0352	OREGON CLEAN ENERGY CENTER	6/18/2013	2 Combined Cycle Combustion Turbines-Mitsubishi, with duct burners	Natural Gas	47917	MMSCF/rolling 12-MO	Two Mitsubishi 2932 MMBtu/H combined cycle combustion turbines , both with 300 MMBtu/H duct burners, with dry low NOx combustors, SCR, and catalytic oxidizer. Will install either 2 Siemens or 2Mitsubishi, not both (not determined). Short term limits are different with and without duct burners. This process with duct burners.	oxidation catalyst	12.7	lb/hr		183.9	T/YR	PER ROLLING 12 MONTHS	2	PPM	PPMVD AT 15% O2
*OH-0356	DUKE ENERGY HANGING ROCK ENERGY	12/18/2012	Turbines (4) (model GE 7FA) Duct Burners On	NATURAL GAS	172	MW	Four GE 7FA combined cycle turbines, dry low NOx burners and selective catalytic reduction. These limits are for each of the 4 turbines individually, while operating with the duct burners on. This permit is a modification to RBLC OH-0252 to remove hourly restrictions on duct burners.	Good combustion practices burning natural gas	45.9	lb/hr		278	T/YR	PER ROLLING 12 MONTHS	8	PPM	PPMVD AT 15% O2 ON 24-H BLOCK AVERAGE
OK-0115	LAWTON ENERGY COGEN FACILITY	12/12/2006	COMBUSTION TURBINE AND DUCT BURNER					GOOD COMBUSTION PRACTICES	16.38	PPMVD	@15% O2	0			0		
OK-0117	PSO SOUTHWESTERN POWER PLT	2/9/2007	GAS-FIRED TURBINES					COMBUSTION CONTROL	25	PPMVD	@15% O2	0			0		
OK-0129	CHOUTEAU POWER PLANT	1/23/2009	COMBINED CYCLE COGENERATION &gt;25MW	NATURAL GAS	1882	MMBTU/H	SIEMENS V84.3A	GOOD COMBUSTION	8	PPMV	1-HR AVG	51.32	PPMV	3-HR AVG	0		
OR-0041	WANAPA ENERGY CENTER	8/8/2005	COMBUSTION TURBINE &amp;gt; HEAT RECOVERY STEAM GENERATOR	NATURAL GAS	2384.1	MMBTU/H	GE 7241FA TURBINE AND DUCT BURNER. COMBUSTION TURBINE - 1,778.5 MMBTU/HR DUCT BURNER - 605.6 MMBTU/HR	OXIDATION CATALYST.	2	PPMDV @ 15% O2	3 HOURS	0			2	PPM @ 15% O2	
*OR-0050	TROUTDALE ENERGY CENTER, LLC	3/5/2014	Mitsubishi M501-GAC combustion turbine, combined cycle configuration with duct burner.	natural gas	2988	MMBTu/hr	or ULSD; Duct burner 499 MMBtu/hr, natural gas	Oxidation catalyst; Limit the time in startup or shutdown.	3.3	PPMDV AT 15% O2	3-HR ROLLING AVERAGE ON NG	9	PPMDV AT 15% O2	3-HR ROLLING AVERAGE ON ULSD	0		
PA-0278	MOXIE LIBERTY LLC/ASYLUM POWER PL T	10/10/2012	Combined-cycle Turbines (2) - Natural gas fired	Natural Gas	3277	MMBTU/H	Two combine cycle Turbines, each with a combustion turbine and heat recovery steam generator with duct burner. Each turbine individually, while operating with the duct burners. The heat input rating of each combustion gas turbine is equal to 469 MW or less. The heat input rating of each supplemental duct burner is equal to 387 MMBtu/hr (HHV) or less.	Oxidation Catalyst	2	PPMVD	@15% O2	15.3	lb/hr	468 MW POWERBLOCK	2	PPMVD	@15% O2
*PA-0286	MOXIE ENERGY LLC/PATRIOT GENERATION PLT	1/31/2013	Combined Cycle Power Blocks 472 MW -(2)	Natural Gas	0		Two natural-gas-fired combined cycle powerblocks where each powerblock consists of a combustion turbine and heat recovery steam generator with duct burner. The Permittee shall select and install any of the turbine options listed below (or newer versions of these turbines if the Department determines that such newer versions achieve equivalent or better emissions rates and exhaust parameters) 1. General Electric 7FA (GE 7FA) 2. Siemens SGT6-5000F (Siemens F) 3. Mitsubishi M501-G (Mitsubishi G) 4. Siemens SGT6-8000H (Siemens H) The emissions listed are for the Siemens SGT6-8000H unit.	CO Catalyst	2	PPMDV		109.3	T/YR	EACH UNIT	0		
*PA-0291	HICKORY RUN ENERGY STATION	4/23/2013	COMBINED CYCLE UNITS #1 and #2	Natural Gas	3.4	MMCF/HR		CO catalyst	2	PPMVD @ 15% OXYGEN	WITH OR WITHOUT DUCT BURNER	267.32	TPY 12-MONTH ROLLING	INCLUDING STARTUP AND SHUTDOWN	0		
*PA-0296	BERKS HOLLOW ENERGY ASSOC LLC/ONTELAUNEE	12/17/2013	Turbine, Combined Cycle, #1 and #2	Natural Gas	3046	MMBTu/hr	Equipped with SCR and Oxidation Catalyst	CO Catalyst	211.92	TPY	12-MONTH ROLLING TOTAL	0			0		
TX-0497	NEOS CHOCOLATE BAYOU FACILITY	8/29/2006	COGENERATION TRAIN 2 AND 3 (TURBINE AND DUCT BURNER EMISSIONS)	NATURAL GAS	35	MW	GREEN POWER ONE WILL CONSIST OF TWO NOMINALLY RATED 35 MW GAS FIRED TURBINES AND TWO HEAT RECOVERY STEAM GENERATORS, EQUIPPED WITH 112 MMBTU/HR DUCT BURNERS. THE COMBUSTION TURBINES WILL ONLY BURN PIPELINE QUALITY SWEET NATURAL GAS. THE DUCT BURNERS WILL BURN NATURAL GAS, COMPLEX GAS OR MIXTURES OF NATURAL GAS AND COMPLEX GAS. STEAM PRODUCED IN THE HRSGS WILL BE USED IN THE CHOCOLATE BAYOU WORKS CHEMICAL COMPLEX. THE CHEMICAL COMPLEX WILL CONSUME APPROXIMATELY HALF OF THE ELECTRICAL OUTPUT PRODUCED BY THE TWO NEW TURBINES. EXCESS POWER PRODUCED BY THE COMBUSTION TURBINES WILL BE SOLD TO THE GRID. THE EMISSIONS ARE PER TRAIN.	BP AMOCO PROPOSES PROPER COMBUSTION CONTROL AS BACT FOR CO AND VOC EMISSIONS FROM THE TURBINES AND DUCT BURNERS. CO EMISSIONS FROM EACH TURBINE WILL NOT EXCEED 15 PPMVD AT 85% TO 100% OF BASE LOAD. CO EMISSIONS FROM EACH TU	66.81	lb/hr		373.51	T/YR		0		
TX-0502	NACOGDOCHES POWER STERNE GENERATING FACILITY	6/5/2006	WESTINGHOUSE/ SIEMENS MODEL SW501F GAS TURBINE W/ 416.5 MMBTU DUCT BURNERS	NATURAL GAS	190	MW			109.4	lb/hr		1080	T/YR		0		
TX-0516	CITY PUBLIC SERVICE JK SPRUCE ELECTRIC GENERATING UNIT 2	12/28/2005	SPRUCE POWER GENERATOR UNIT NO 2						4480	lb/hr		5256	T/YR		0		
TX-0546	PATILLO BRANCH POWER PLANT	6/17/2009	ELECTRICITY GENERATION	NATURAL GAS	350	MW	EACH TURBINE/HRSG WILL BE DESIGNED TO OUTPUT 350 MW. TURBINES BEING CONSIDERED FOR THE PROJECT ARE GE 7FA, GE 7FB, AND SIEMENS SGT6-5000F.	OXIDATION CATALYST	2	PPMVD	@ 15% O2, 3-HR ROLLING AVG	0			0		



**Table D-A-3  
Carbon Monoxide (CO) RBL Search - Combustion Turbines Firing Natural Gas (With Duct Burning)  
Invenergy, LLC - Allegheny County Energy Center Project**

RBLCD	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
TX-0547	NATURAL GAS-FIRED POWER GENERATION FACILITY	6/22/2009	ELECTRICITY GENERATION	NATURAL GAS	250	MW	LAMAR POWER PARTNERS PROPOSES TO CONSTRUCT A NATURAL GAS-FIRED COMBINED-CYCLE POWER BLOCK TO BE BUILT AT THE EXISTING SITE IN LAMAR COUNTY, TEXAS. THE NEW POWER BLOCK WILL BE CAPABLE OF PRODUCING EITHER 620 OR 910 MEGAWATTS OF ELECTRICITY, DEPENDING UPON WHICH COMBUSTION TURBINE MODEL OPTION IS CHOSEN. THE PROPOSED PROJECT WOULD INCLUDE TWO COMBUSTION TURBINES (EITHER 170 MW GENERAL ELECTRIC 7FAS OR 250 MW MITSUBISHI 501GS), TWO HEAT RECOVERY STEAM GENERATORS WITH DUCT BURNERS AND ONE STEAM TURBINE. THE GE7FAS WOULD BE CAPABLE OF PRODUCING 620 MW OF ELECTRICITY IN COMBINED CYCLE MODE, WHILE THE M501GS WOULD PRODUCE 910 MW IN COMBINED CYCLE MODE.	GOOD COMBUSTION PRACTICES	15	PPMVD	@ 15% O <sub>2</sub> , 24-HR ROLLING AVG	0			0		
TX-0548	MADISON BELL ENERGY CENTER	8/18/2009	ELECTRICITY GENERATION	NATURAL GAS	275	MW	FOUR GE P07121(EA) COMBINE CYCLE TURBINES FIRING NATURAL GAS WILL DIRECTLY GENERATE 75 MW; EACH HAS A 165 MMBTU/HR DUCT BURNER AND A HEAT RECOVERY STEAM GENERATOR. TWO HRS6A <sub>5</sub> S WILL TURN ONE 125 MW STEAM TURBINE AND THE OTHER TWO WILL TURN ANOTHER 125 MW STEAM TURBINE. THE TURBINE MAY OPERATE WITHOUT THE DUCT BURNER.	GOOD COMBUSTION PRACTICES	17.5	PPMVD	@ 15% O <sub>2</sub> , 1-HR ROLLING AVG	0			0		
TX-0590	KING POWER STATION	8/5/2010	Turbine	natural gas	1350	MW	The plant will be designed to generate 1350 nominal megawatts of power. There are two configuration scenarios: either four Siemens SGT6-5000F CTGs in combined-cycle mode (Scenario A) or four GE Frame 7FA CTGs in combined cycle mode (Scenario B). Scenario B also includes one or two auxiliary boilers.	good combustion practices with an oxidation catalyst	2	PPMVD AT 15% O <sub>2</sub>	THREE-HOUR ROLLING	0			0		
TX-0600	THOMAS C. FERGUSON POWER PLANT	9/1/2011	Natural gas-fired turbines	natural gas	390	MW	(1) GE7FA 195 MW each. (1) steam turbine at 200 MW. Each turbine is equipped with an unfired heat recovery steam generator (HRSG), which provides steam for the steam turbine.	Good combustion practices and oxidation catalyst	4	PPMVD	ROLLING 3-HR AT 15% OXYGEN /LOAD >= 60%	6	PPMVD	ROLLING 3-HR AT 15% OXYGEN /LOAD < 60%	0		
TX-0618	CHANNEL ENERGY CENTER LLC	10/15/2012	Combined Cycle Turbine	natural gas	180	MW	The turbine is a Siemens 501F rated at a nominal 180 MW and the duct burner will have a maximum design heat input of 475 MMBtu/hr.	Good combustion	4	PPMVD	@ 15% O <sub>2</sub> ON A 24-HR ROLLING AVG	0			0		
TX-0619	DEER PARK ENERGY CENTER	9/26/2012	Combined Cycle Turbine	natural gas	180	MW	natural gas-fired combined cycle turbine generator with a heat recovery steam generator equipped with a duct burner. The turbine is a Siemens 501F rated at a nominal 180 megawatts and the DB will have a maximum design rate capability of 725 million British thermal units per hour.	good combustion	4	PPMVD	@15% O <sub>2</sub> , 24-HR ROLLING AVG	0			0		
*TX-0641	PINECREST ENERGY CENTER	11/12/2013	combined cycle turbine	natural gas	700	MW	The generating equipment consists of two natural gas-fired combustion turbines (CTs), each exhausting to a fired heat recovery steam generator (HRSG) to produce steam to drive a shared steam turbine generator. The steam turbine is rated at 271 MW of electric output. Three models of combustion turbines are being considered for this site: the General Electric 7FA.05, the Siemens SGT6-5000F(4), and the Siemens SGT6-5000F(5). The final selection of the combustion turbine will not be made until after the permit is issued. Plant output will range between 637 and 735 MW, depending on the model turbine selected. Duct Burners are rated at 750 MMBtu/hr each.	oxidation catalyst	2	PPMVD	3-HR ROLL AVG, 15% OXYGEN, 80-100% LOAD	4	PPMVD	3-HR ROLL AVG, 15% OXYGEN, 60-80% LOAD	0		
*TX-0660	FGE TEXAS POWER I AND FGE TEXAS POWER II	3/24/2014	Alstom Turbine	Natural Gas	230.7	MW	Four (4) Alstom GT24 CTGs, each with a HRSG and DBs, max design capacity 409 MMBtu/hr.	Oxidation catalyst	2	PPMVD	CORRECTED TO 15% O <sub>2</sub> , ROLLING 3 HR AVE	0			0		
*TX-0678	FREETPORT LNG PRETREATMENT FACILITY	7/16/2014	Combustion Turbine	natural gas	87	MW	The exhaust heat from the turbine will be used to heat a heating medium which is used to regenerate rich amine from the acid gas removal system.	oxidation catalyst	4	PPMVD	@15% O <sub>2</sub> , 3 HOUR ROLLING AVERAGE	0			0		
*TX-0687	WEST PLANT AND EAST PLANT CENTRAL HEAT AND POWER	10/13/2014	Two Combustion Turbine-Generators	Natural Gas	13	MW	Combined Cycle	Good combustion practices	50	PPM	15% O <sub>2</sub> , 24HR ROLLING AVG.	0			0		
*TX-0689	CEDAR BAYOU ELECTRIC GENERATION STATION	8/29/2014	Combined cycle natural gas turbines	Natural Gas	225	MW	(4) cogeneration turbines	OC	2	PPM	ROLLING 12 MONTHS	4	PPM	1HR AVG.	0		
*TX-0698	BAYPORT COMPLEX	9/5/2013		natural gas	90	MW	(4) GE 7FA turbines providing power and process steam	DLN and Closed Loop Emissions Controls (CLEC)	15	PPMVD	@15% O <sub>2</sub>	0			0		
*TX-0708	LA PALOMA ENERGY CENTER	2/7/2013	(2) combined cycle turbines	natural gas	650	MW	The specific equipment includes two combustion turbines (CTs) connected to electric generators, producing between 183 and 232 MW of electricity, depending on ambient temperature and the selected CT. The two HRSGs use duct burners rated at 750 MMBtu/hr each to supplement the heat energy from the CTs. The steam from the two HRSGs is combined and routed to a single steam turbine driving a third electric generator with an electricity output capacity of 271 MW. Depending on the selected CT, total plant output at 59A°F is between 637 MW and 735 MW.	oxidation catalyst	2	PPMVD	@15% O <sub>2</sub> , 3-HR ROLLING, 80-100% LOAD	4	PPMVD	@15% O <sub>2</sub> , 3-HR ROLLING, 60-80% LOAD	0		
*TX-0709	SAND HILL ENERGY CENTER	9/13/2013	Natural gas-fired combined cycle turbines	Natural Gas	173.9	MW	The applicant is considering three models of CT; one model will be selected and the permit revised to reflect the selection before construction begins. The three CT models are: (1) General Electric 7FA.04, (2) Siemens SGT6-5000F(4), or (3) Siemens SGT6-5000F(5).	OC	2	PPM	1HR AVG.	0			0		
*TX-0710	VICTORIA POWER STATION	12/1/2014	combined cycle turbine	natural gas	197	MW	General Electric 7FA.04 at 197 MW nominal output. The duct burners will be capable of a maximum natural gas firing rate of up to 483 MMBtu/hr (HHV). The duct burners may be fired additional hours; however, total annual firing will not exceed the equivalent of 4,375 hours at maximum capacity per duct burner. The available capacity of the existing steam turbine will be increased from 125 MW in its existing 1x1x1 configuration to approximately 185 MW in the 2x2x1 configuration.	oxidation catalyst	4	PPMVD	@15% O <sub>2</sub> , 3-HR ROLLING AVERAGE	0			0		
*TX-0712	TRINIDAD GENERATING FACILITY	11/20/2014	combined cycle turbine	natural gas	497	MW	The facility will consist of a Mitsubishi Heavy Industries (MHI) J model gas fired combustion turbine nominally rated at 497 megawatts (MW) equipped with a HRSG and DB with a maximum design capacity of 402 million British thermal units per hour (MMBtu/hr). The gross nominal output of the CTG with HRSG and DB is 530 MW.	oxidation catalyst	4	PPMVD	@15% O <sub>2</sub> , 24-HR ROLLING AVERAGE	0			0		
*TX-0713	TENASKA BROWNSVILLE GENERATING STATION	4/29/2014	(2) combined cycle turbines	natural gas	274	MW	Each CTG is site-rated at 274 MW gross electric output at 62A°F ambient temperature. At this condition, two HRSGs with full duct burner firing produce enough steam to generate an additional 336 MW, for a total of 884 MW gross, or with about 5% losses, about 840 MW net electric output. Under summertime conditions, the net output is approximately 800 MW with the 2x1 CCGT configuration or about 400 MW with the 1x1 CCGT configuration.	oxidation catalyst	2	PPMVD	@15% O <sub>2</sub> , 24-HR ROLLING AVERAGE	0			0		
*TX-0714	S R BERTRON ELECTRIC GENERATING STATION	12/19/2014	(2) combined cycle turbines	natural gas	240	MW	The gas turbines will be one of three options:  (1) Two Siemens Model F5 (SF5) CTGs each rated at nominal capability of 225 megawatts (MW). Each CTG will have a duct fired HRSG with a maximum heat input of 688 million British thermal units per hour (MMBtu/hr).  (2) Two General Electric Model 7FA (GE7FA) CTGs each rated at nominal capability of 215 MW. Each CTG will have a duct fired HRSG with a maximum heat input of 523 MMBtu/hr.  (3) Two Mitsubishi Heavy Industry G Frame (MHI501G) CTGs each rated at a nominal electric output of 263 MW. Each CTG will have a duct fired HRSG with a maximum heat input of 686 MMBtu/hr.	oxidation catalyst	4	PPMVD	@15% O <sub>2</sub> , ONE HOUR	2	PPMVD	@15% O <sub>2</sub> , ROLLING 12-MONTH	0		

**Table D-A-3  
Carbon Monoxide (CO) RBLC Search - Combustion Turbines Firing Natural Gas (With Duct Burning)  
Invenergy, LLC - Allegheny County Energy Center Project**

RBLCD	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
*TX-0727	CEDAR BAYOU ELECTRIC GENERATING STATION	3/31/2015	Combined cycle turbines	Natural Gas	187	MW/turbine		Oxidation catalysts	15	PPMVD	15%O2	0			0		
*TX-0730	COLORADO BEND ENERGY CENTER	4/1/2015	Combined-cycle gas turbine electric generating facility	natural gas	1100	MW	combined cycle power plant that uses two combustion turbines and one steam turbine, model GE 7HA.02	SCR and oxidation catalyst	4	PPMVD @ 15% O2	3-HR AVERAGE	0			0		
*TX-0751	EAGLE MOUNTAIN STEAM ELECTRIC STATION	6/18/2015	Combined Cycle Turbines (&gt;25 MW) @ natural gas	natural gas	210	MW	Two power configuration options authorized Siemens @~ 231 MW + 500 million British thermal units per hour (MMBtu/hr) duct burner GE @~ 210 MW + 349.2 MMBtu/hr duct burner	Oxidation catalyst	2	PPM	ROLLING 24-HR AVERAGE	0			0		
*TX-0767	LON C. HILL POWER STATION	10/2/2015	Combined Cycle Turbines (&gt;25 MW)	natural gas	195	MW	Two power configuration options authorized Siemens @~ 240 MW + 250 million British thermal units per hour (MMBtu/hr) duct burner GE @~ 195 MW + 670 MMBtu/hr duct burner	Oxidation Catalyst	2	PPM	ROLLING 24-HR AVERAGE (WITH DUCT BURNER FIRING)	0			0		
VA-0315	WARREN COUNTY POWER PLANT - DOMINION	12/17/2010	COMBINED CYCLE TURBINE &amp; DUCT BURNER, 1	Natural Gas	2996	MMBTU/H	Emissions are for one of three units (Mitsubishi natural gas-fired combustion turbine (CT) generator Model M501 GAC). Throughput and Units above are for the GEF7.05.	Oxidation catalyst and good combustion practices.	2.4	PPMVD					0		
*VA-0322	GREEN ENERGY PARTNERS/ STONEWALL, LLC	4/30/2013	Large combustion turbines (&gt;25MW) CCT1 and CCT2	Natural Gas	2.23	MMBTU/hr	Siemens SGT5-5000F5. Throughput: 2,260 MMBTU/hr	Catalytic Oxidizer	0			0			0		
*VA-0321	BRUNSWICK COUNTY POWER STATION	3/12/2013	COMBUSTION TURBINE GENERATORS, (3)	Natural Gas	3442	MMBTU/H	Three (3) Mitsubishi M501 GAC combustion turbine generators with HRSG duct burners (natural gas-fired).	Oxidation catalyst; good combustion practices.	1.5	PPMVD	3 H AVG/WITHOUT DUCT BURNING	0			0		
WA-0328	BP CHERRY POINT COGENERATION PROJECT	1/11/2005	GE 7FA COMBUSTION TURBINE &amp; HEAT RECOVERY STEAM GENERATOR	NATURAL GAS	174	MW	THREE IDENTICAL CT & HRSG UNITS. EACH CT WILL HAVE AN ANNUAL AVERAGE CAPACITY RATING OF 1614 MMBTU/HR. EACH HRSG DUCT BURNER WILL HAVE A MAXIMUM FIRING RATE OF 105 MMBTU/HR. This entry is for both of two identical units at the facility.	LEAN PRE-MIX CT BURNER & OXIDATION CATALYST	2	PPMDV	3-HR @ 15%O2	0			0	PPM @ 15 % O2	UNITS NOT AVAILABLE *SEE NOTES
*WV-0025	MOUNDSVILLE COMBINED CYCLE POWER PLANT	11/21/2014	Combined Cycle Turbine/Duct Burner	Natural Gas	2419.61	mmBtu/Hr	Nominal 197 mW General Electric Frame 7FA.04 Turbine w/ Duct Burner - throughput denotes aggregate heat input of turbine and duct burner (HTV).	Oxidation Catalyst + Combustion Controls	9.2	lb/hr		0			2	PPM	@ 15% O2
*WY-0070	CHEYENNE PRAIRIE GENERATING STATION	8/28/2012	Combined Cycle Turbine (EP01)	Natural Gas	40	MW		Oxidation Catalyst	4	PPMV AT 15% O2	1-HOUR	3.7	lb/hr	30-DAY ROLLING AVERAGE	32	T/YR	
	Astoria Energy LLC		Combustion Turbine	Natural Gas	1000	MW		Oxidation Catalyst	1.5	ppmvd @ 15% O2	1-hour average; Duct Burners On	7.7	lb/hr	1-hr average; Duct Burners On			
	Catoctin Power LLC		Combustion Turbine	Natural Gas	170	MW		DLN combustion design; oxidation catalyst	3	ppmvd @ 15% O2	3 hr average; Duct Burners On						
	Footprint Power Salem Harbor Development LP		Combustion Turbine	Natural Gas	346	MW		Oxidation Catalyst	8	lb/hr	1-hr average; Duct Burners On	0.0045	lb/MMBtu	1-hr average; Duct Burners On			
	Footprint Power Salem Harbor Development LP		Combustion Turbine	Natural Gas	346	MW		SCR/Low NOx Burners	2	ppmvd @ 15% O2	1-hr average; Duct Burners On	0.025	lb/MW-lr	1-hr average; Duct Burners On			
	Kalama Energy Center		Combustion Turbine	Natural Gas	2247	MMBTu/hr		Oxidation Catalyst	2	ppmvd @ 15% O2	1-hr average	11.3	lb/hr	1-hr average			
	Lawrence Energy Center LLC		Combustion Turbine	Natural Gas	180	MW		Oxidation Catalyst and GCP	2	ppmvd @ 15% O2	1-hr average						
	Lawrence Energy Center LLC		Combustion Turbine	Natural Gas	180	MW		Oxidation Catalyst and GCP	10	ppmvd @ 15% O2	1-hr average						
	GenCom Middletown LLC		Combustion Turbine	Natural Gas	474.9	MMBTu/hr			5	ppmvd @ 15% O2		8	lb/hr				
	PacificCorp Energy		Block 1 CT	Natural Gas					3	ppmvd @ 15% O2	3-hour	14.1	lb/hr				
	PacificCorp Energy		Block 2 CT	Natural Gas	629	MW			3	ppmvd @ 15% O2	3-hour	14.1	lb/hr				
	Pioneer Valley		Combustion Turbine	Natural Gas	387	MW			2	ppmvd @ 15% O2	1-hr average						
	Russell City Energy Company, LLC		Combustion Turbine	Natural Gas	2,038.60	MMBTu/hr			2	ppmvd @ 15% O2	1-hr average						
	Sevier Power Company Power Plant		Combustion Turbine	Natural Gas	580	MW			3	ppmvd @ 15% O2	3-hr average						
	CPV Valley Energy Center Wawayanda, NY			Natural Gas	630	MW			2	ppmvd @ 15% O2	1-hr average						
	CPV Valley Energy Center Wawayanda, NY			Natural Gas	630	MW			3.6	ppmvd @ 15% O2	1-hr average						
	Woodbridge Energy Center (CPV Shore, LLC)			Natural Gas	2,807	MMBTu/hr			2	ppmvd @ 15% O2							
	Woodbridge Energy Center (CPV Shore, LLC)			Natural Gas	2,307	MMBTu/hr			2	ppmvd @ 15% O2							
	PA STATE UNIV/UNIV PARK CAMPUS		COMBINED HEAT AND POWER DUAL-FIRED COMBUSTION TURBINE	Natural Gas	86.29	MMBTu/hr			1.3	ppmvd @ 15% O2							
	Hummel Station LLC		Combustion Turbine	Natural Gas	2,254.00	MMBTu/hr			11.22	lb/hr		10.6	lb/hr				
	Crickett Valley Energy Center		Combustion Turbine	Natural Gas	1000	MW			2	ppmvd @ 15% O2	1-hr average						
	Effingham County Power Gibson County Generation, LLC		Combustion Turbine	Natural Gas	180	MW			2	ppmvd @ 15% O2	3-hr average						
			Combustion Turbine	Natural Gas	417	MW			3	ppmvd @ 15% O3	24-hr average	0.0056	lb/MMBtu				
	Tenaska Partners LLC		Combustion Turbine	Natural Gas	3147	MMBTu/hr			2	ppm @15% O2		15.9	lb/hr				
	UGI Development Co/ Hunlock Creek			Natural Gas	471.2	MMBTu/hr			4	ppm @15% O2	>32 °F						
	UGI Development Co/ Hunlock Creek			Natural Gas	471.2	MMBTu/hr			10	ppm @15% O2	<32 °F						
	Huntington Beach Energy Project			Natural Gas	939	MW (net)			2	ppm @15% O2	1-hr rolling						
	Hess Newark Energy Center		Combustion Turbine	Natural Gas	2266	MMBTu/hr			2	ppm @15% O2		0.0045	lb/MMBtu				
	York Energy Center Block 1				1574	MMBTu/hr			6	ppmvd	3 hour average, rolling by 1-hour						
	Shell Chemical Appalachia/Petrochemicals Complex	6/18/2015			664	MMBTu/hr	combustion turbines with duct burners		2	ppmvd @ 15% O2	1-hour average	lb/hr					

Table D-A-3  
Carbon Monoxide (CO) RBLC Search - Combustion Turbines Firing Natural Gas (With Duct Burning)  
Invenergy, LLC - Allegheny County Energy Center Project

RBLCD	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
	Liberty Electric Power, LLC				1954	MMBtu/hr	Without DB		9	ppmvd @ 15% O2							
	Liberty Electric Power, LLC				1954	MMBtu/hr	With DB		20	ppmvd @ 15% O2							

**Table D-A-4**  
**Carbon Monoxide (CO) RBLSC Search - Combustion Turbines Firing Natural Gas (Without Duct Burning)**  
**Invenergy, LLC - Allegheny County Energy Center Project**

RBLCD	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
CT-0161	KILLINGLY ENERGY CENTER	6/30/2017	Natural Gas w/o Duct Firing	Natural Gas	2969	MMBTU/hr	Throughput is for turbine only	Oxidation Catalyst	0.9	PPMVD @15% O2	1 HOUR BLOCK	0			0		
FL-0356	OKIECHOBEE CLEAN ENERGY CENTER	3/9/2016	Combined-cycle electric generating	Natural Gas	3096	MMBTU/hr per turbine	3-on-1 combined cycle unit. GE 7HA.02 turbines, approximately 350 MW per turbine. Total unit generating capacity is approximately 1,600 MW. Primarily fueled with natural gas.	Clean burners that prevent CO formation	4.3	PPMVD@15% O2	3-HR AVERAGE, NATURAL GAS	10	PPMVD@15% O2	3-HR AVERAGE, ULSD	0		
*FL-0363	DANIA BEACH ENERGY CENTER	12/4/2017	2-on-1 combined cycle unit (GE 7HA)	Natural Gas	4000	MMBTU/hr	Two nominal 430 MW combustion turbines, coupled to a steam turbine generator	Clean burning fuel with lean pre-mix turbines	4.3	PPMVD@15% O2	AT LOADS > 90%	7.2	PPMVD@15% O2	FOR LOADS < 90%	0		
MI-0423	INDECK NILES, LLC	1/4/2017	FGCTGHRSG (2 Combined Cycle	Natural Gas	8322	MMBTU/H	There are 2 combined cycle natural gas-fired combustion turbine generators (CTGs) with heat recovery steam generators (HRSG) identified as EUCCTGHRSG1 & EUCCTGHRSG2 in the	Oxidation catalyst technology and good combustion practices.	24.7	LB/H	24-H ROLLING AVG	3537	LB/H	OPERATING HR DURING	0		
MI-0424	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH	12/5/2016	FGCTGHRSG (2 Combined cycle	Natural Gas	554	MMBTU/H, each	Two combined cycle natural gas-fired combustion turbine generators (CTGs) with heat recovery steam generators (HRSG) (EUCCTGHRSG10 & EUCCTGHRSG11 in FGCTGHRSG).	Oxidation catalyst technology and good combustion practices.	4	PPM	EACH FU; 24-H ROLL AVG	5.31	LB/H	ROLL AVG	0		
MI-0424	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH	12/5/2016	FGCTGHRSG - Startup/Shutdown (2	Natural Gas	554	MMBTU/H, EACH	Two combined cycle natural gas-fired combustion turbine generators (CTGs) with heat recovery steam generators (HRSG) (EUCCTGHRSG10 & EUCCTGHRSG11 in FGCTGHRSG).	Oxidation catalyst technology and good combustion practices.	247.3	LB/H	OPERATING HOUR DURING	551.3	LB/H	OPERATING HOUR DURING	0		
MI-0427	FILER CITY STATION	11/17/2017	EUCCT (Combined cycle CTG with	Natural Gas	1934.7	MMBTU/H	A 1,934.7 MMBTU/H natural gas fired heavy frame industrial combustion turbine. The turbine operates in combined-cycle with an unfired heat recovery steam generator (HRSG).	Oxidation catalyst technology and good combustion practices.	4	PPM	ROLL AVG.	17.4	LB/H	ROLL AVG.	0		
MI-0427	FILER CITY STATION	11/17/2017	EUCCT (Startup/Shutdown)	Natural Gas	1934.7	MMBTU/H	This emission unit is being entered as a separate process to account for the emission limits associated with startup/shutdown events, which could not be included within the previous	Oxidation catalyst technology and good combustion practices.	1580	POUNDS	POUNDS PER EVENT	0			0		
*MI-0432	NEW COVERT GENERATING FACILITY	7/30/2018	FG-TURBBDB1-3-- Startup/Shutdown	Natural Gas	1230	MW	Three (3) combined-cycle combustion turbine (CT) heat recovery steam generator (HRSG) trains. Each CT is a natural gas fired Mitsubishi model 501G, equipped with dry low NOx	Oxidation catalyst technology and good combustion practices.	1164	LB/H	EACH CT HRSG TRAIN;	0			0		
*MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	FGCTGHRSG (EUCCTGHRSG1	Natural Gas	0		Two (2) combined-cycle natural gas-fired combustion turbine generators, each with a heat recovery steam generator (CTGHRSG).	Oxidation catalyst technology and good combustion practices.	0.0045	LB/MMBTU	EACH UNIT; 24-H ROLL AVG.	17.59	LB/H	EACH UNIT; 24-H ROLL AVG.	0		
*MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	FGCTGHRSG (EUCCTGHRSG1	Natural Gas	0		This section is the startup and shutdown emission limits for FGCTGHRSG.	Oxidation catalyst technology and good combustion practices.	791.5	LB/H	EACH UNIT; OPERATING	0			0		
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	Combined Cycle Combustion Turbine	Natural Gas	8040	HYR	NEW 633 MEGAWATT (MW) GROSS FACILITY CONSISTING OF 1. ONE GENERAL ELECTRIC (GE) 7HA.02 CCT NOMINALLY RATED AT 380 MW	OXIDATION CATALYST AND GOOD COMBUSTION PRACTICES	2	PPMVD@15% O2	3 H ROLLING AV	15.3	LB/H	AV OF THREE	0		
TX-0788	NECHES STATION	3/24/2016	Combustion Turbine	natural gas	231	MW	2 CTGs to operate in simple cycle & combined cycle modes. 231 MW (Siemens) or 210 MW (GE). Simple cycle operations limited to 2,500 hr/yr.	OXIDATION CATALYST	4	PPM	HOURLY	2	PPM	ANNUAL AVERAGE	0		
TX-0789	DECOROVA STEAM ELECTRIC STATION	3/8/2016	Combustion Turbine	natural gas	231	MW	2 CTGs to operate in simple cycle & combined cycle modes. 231 MW (Siemens) or 210 MW (GE). Simple cycle operations limited to 2,500 hr/yr.	OXIDATION CATALYST	4	PPM	HOURLY	0			0		
TX-0790	PORT ARTHUR LNG EXPORT TERMINAL	3/8/2016	Refrigeration Compression	natural gas	10	M TONNES/YR	Four GE Frame 7E gas turbines for refrigeration and compression at the site	Dry low NOx burners and good combustion practices	25	PPM	ROLLING 3-HR AVERAGE	0			0		
TX-0790	PORT ARTHUR LNG EXPORT TERMINAL	2/17/2016	Simple Cycle	natural gas	34	MW	Nine GE PG25-G4 gas turbines for electrical generation at the site at 34 MW/turbine	OXIDATION CATALYST	9	PPM	ROLLING 3-HR AVERAGE	0			0		
*TX-0834	MONTGOMERY COUNTY POWER STATION	3/30/2018	Combined Cycle	NATURAL GAS	2635	MMBTU/HR/UNIT	Two Mitsubishi M501GAC turbines (without fast start)	OXIDATION CATALYST	2	PPMVD	15% O2 3 HOUR AVERAGE	0			0		
*TX-0834	MONTGOMERY COUNTY POWER STATION	3/30/2018	COMBINED CYCLE TURBINE	NATURAL GAS	0		9 HOURS STARTUP, 1 HOUR SHUTDOWN	minimizing duration of startup / shutdown events, engaging the pollution control	8000	LB/H		0			0		
CA-1191	VICTORVILLE 2 HYBRID POWER PROJECT	3/11/2010	COMBUSTION TURBINE #2 (NORMAL OPERATION, NO DUCT BURNING)	NATURAL GAS	154	MW	154 MW Combined Cycle Combustion Turbine Generator	OXIDATION CATALYST SYSTEM	2	PPMVD	@15% O2, 1-HR AVG (NO DUCT BURNING)	7.65	lb/hr	1-HR AVG (NO DUCT BURNING)	0		
CA-1192	AVENAL ENERGY PROJECT	6/21/2011	COMBUSTION TURBINE #1 (NORMAL OPERATION, NO DUCT BURNING)	NATURAL GAS	180	MW		OXIDATION CATALYST SYSTEM	1.5	PPMVD	@15% O2, 1-HR AVG	6.27	lb/hr	1-HR AVG	0		
CA-1195	ELK HILLS POWER LLC	1/12/2006	COMBUSTION TURBINE GENERATOR, 2 units (Normal Operation)	NATURAL GAS	166	MW	Each CTG system will generate 166 MW under design ambient conditions with steam power augmentation from the duct burners, and 153 MW without steam augmentation.	SCR OR SCONOX	4	PPMVD	@15% O2, 1-HR AVG	12.5	lb/hr	1-HR AVG	0		
CA-1209	HIGH DESERT POWER PROJECT	3/11/2010	COMBUSTION TURBINE GENERATORS (NORMAL OPERATION)	NATURAL GAS	190	MW	THREE (3) COMBUSTION TURBINE GENERATORS AT 190 MW EACH AND EQUIPPED WITH A 160 MMBTU/HR DUCT BURNER AND HRSG	OXIDATION CATALYST SYSTEM	4	PPMVD	@15% O2, 24-HR AVG	17.53	lb/hr	24-HR AVG	0		
CA-1211	COLUSA GENERATING STATION	3/11/2011	COMBUSTION TURBINES (NORMAL OPERATION)	NATURAL GAS	172	MW	TWO (2) NATURAL GAS FIRED TURBINES AT 172 MW EACH. BOTH TURBINES EQUIPPED WITH A 688 MMBTU/HR DUCT BURNER AND HRSG.	CATALYTIC OXIDATION SYSTEM	3	PPMVD	@15% O2, 3-HR ROLLING AVG	17.9	lb/hr	3-HR ROLLING AVG	0		
CA-1212	PALMDALE HYBRID POWER PROJECT	10/18/2011	COMBUSTION TURBINES (NORMAL OPERATION)	NATURAL GAS	154	MW	TWO NATURAL GAS-FIRED COMBUSTION TURBINE-GENERATORS (CTGS) RATED AT 154 MEGAWATT (MW, GROSS) EACH, TWO HEAT RECOVERY STEAM GENERATORS (HRSG), ONE STEAM TURBINE GENERATOR (STG) RATED AT 267 MW, AND 251 ACRES OF PARABOLIC SOLAR-THERMAL COLLECTORS WITH ASSOCIATED HEAT-TRANSFER EQUIPMENT	OXIDATION CATALYST SYSTEM	1.5	PPMVD	@15% O2, 1-HR AVG (NO DUCT BURNING)	2	PPMVD	@15% O2, 1-HR AVG (W/ DUCT BURNING)	0		
CO-0056	ROCKY MOUNTAIN ENERGY CENTER, LLC	5/2/2006	NATURAL-GAS FIRED, COMBINED-CYCLE TURBINE	NATURAL GAS	300	MW	ONE NEW COMBINED-CYCLE TURBINE IS BEING ADDED TO AN EXISTING FACILITY.	USE GOOD COMBUSTION CONTROL PRACTICES AND CATALYTIC OXIDATION.	3	PPM @ 15% O2		0.044	LB/MMBTU	MONTHLY AV	3	PPM @ 15 O2	
*CO-0073	PUEBLO AIRPORT GENERATING STATION	7/22/2010	Four combined cycle combustion turbines	natural gas	373	mmbtu/hr	Three GE, LMS6000 PF, natural gas-fired, combined cycle CTG, rated at 373 MMBTU per hour each, based on HHV and one (1) HRSG each with no Duct Burners	Good combustion control and catalytic oxidation	4	PPMVD AT 15% O2	1-HR AVE	3.3	lb/hr	30-DAY ROLLING AVE	0		
CT-0151	KLEEN ENERGY SYSTEMS, LLC	2/25/2008	SIEMENS SGT6-5000F COMBUSTION TURBINE #1 AND #2 (NATURAL GAS FIRED) WITH 445 MMBTU/HR NATURAL GAS DUCT BURNER	NATURAL GAS	2.1	MMCF/H	THROUGHPUT IS FOR TURBINE ONLY WHEN FIRING NATURAL GAS TURBINE: 2136 MMBTU/HR (2.095 MMCF/HR) DUCT BURNER: 445 MMBTU/HR (0.436 MMCF/HR)	CO CATLYST	4.3	lb/hr	W/OUCT BURNER	8.4	lb/hr	W/DUCT BURNER	PPMVD @ 15 % O2	1 HR-BLOCK (W/OUCT BURNER)	
*DE-0023	NRG ENERGY CENTER DOVER	10/31/2012	UNIT 2- KDI COMBINED CYCLE TURBINE	Natural Gas	655	MMBTU/H	500 MMBTU/hr Gas Turbine (Model: GE LM6000) rated at 52 MW and 155 MMBTU/hr Heat Recovery Steam Generator rated at 18 MW. The unit is required to operate a certified CEMS and COMS.	Oxidation Catalyst System	19.54	lb/hr	1 HOUR AVERAGE	0.032	LB/MMBTU	1 HOUR AVERAGE	0		
FL-0265	HINES POWER BLOCK 4	6/8/2005	COMBINED CYCLE TURBINE	NATURAL GAS	530	MW		GOOD COMBUSTION	8	PPM	NATURAL GAS	12	PPM	OIL	8	PPM @ 15% O2	
FL-0285	PROGRESS BARTOW POWER PLANT	1/26/2007	COMBUSTION TURBINE SYSTEM (4-ON-1)	NATURAL GAS	1972	MMBTU/H	1876 MMBTU/HR WHEN FIRING DISTILLATE FUEL OIL. THE SYSTEM NOMINAL CAPACITY 1280 MW. EACH UNIT NOMINAL CAPACITY 215 MW (ISO) WITH DUCT-FIRED HEAT RECOVERY STEAM GENERATOR.	GOOD COMBUSTION	8	PPMVD	24-HR BLOCK AVERAGE CEMS	0			0		



**Table D-A-4**  
**Carbon Monoxide (CO) RBLC Search - Combustion Turbines Firing Natural Gas (Without Duct Burning)**  
**Invenergy, LLC - Allegheny County Energy Center Project**

RBLCD	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
NC-0101	FORSYTH ENERGY PLANT	9/29/2005	TURBINE, COMBINED CYCLE, NATURAL GAS, (3)	NATURAL GAS	1844.3	MMBTU/H	Each of these units have a natural gas-fired heat recovery steam generator and a natural gas-fired duct burner. Each CT combusts natural gas as the primary fuel and very low-sulfur No. 2 fuel oil as a backup fuel. The use of fuel oil is limited to 1,200 hours per year and only during the months of November through March, and is listed as a separate process. These units are listed as a combined source (all three units) for each type of fuel.	GOOD COMBUSTION PRACTICES AND EFFICIENT PROCESS DESIGN.	11.6	PPM @ 15% O2	3-hour average	0			11.6	PPM @ 15% O2	
NJ-0074	WEST DEPTFORD ENERGY	5/6/2009	TURBINE, COMBINED CYCLE	NATURAL GAS	17298	MMBTU/YR		CO OXIDATION CATALYST	0.01	LB/MMBTU	3 HR ROLLING AVERAGE	2	PPMVD@15%O2	3 HR ROLLING AVERAGE	0		
*NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	Combined Cycle Combustion Turbine -Siemens turbine without Duct Burner	Natural gas	33691	MMBTU/hr	Natural Gas Usage <= 33,691 MMH <sup>3</sup> /yr per 365 consecutive day period, rolling one day basis (per two turbines and two duct burners) The heat input rate of each Siemens combustion turbine will be 2,356 MMBtu/hr(HHV)	CO Oxidation Catalyst and Good Combustion Practices and use of Natural gas as a clean burning fuel	2	PPMVD@15% O2	3-HR ROLLING AVE BASED ON 1-HR BLOCK	12	lb/hr	AVERAGE OF THREE ONE HOUR TESTS	0		
*NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITHOUT DUCT BURNER - GENERAL ELECTRIC	Natural Gas	33691	MMCF/YR	Natural Gas Usage <= 33,691 MMH <sup>3</sup> /yr per 365 consecutive day period, rolling one day basis (per two turbines and two duct burners) The heat input rate of each General Electric combustion turbine will be 2,312 MMBtu/hr(HHV)	CO Oxidation Catalyst and Good Combustion Practices and use of Natural gas as a clean burning fuel	2	PPMVD@15%O2	3-HR ROLLING AVE BASED ON 1-HR BLOCK	10.2	lb/hr	AVERAGE OF THREE ONE HOUR TESTS	0		
*NJ-0082	WEST DEPTFORD ENERGY STATION	7/18/2014	Combined Cycle Combustion Turbine without Duct Burner	Natural Gas	20282	MMCF/YR	This is a 427 MW Siemens Combined Cycle Turbine with duct burner Heat Input rate of the turbine = 2276 MMBtu/hr (HHV) Heat Input rate of the Duct burner= 777 MMBtu/hr(HHV)	Oxidation Catalyst and Use of Natural gas a clean burning fuel	0.9	PPMVD@15%O2	3-HR ROLLING AVE BASED ON 1-HR BLOCK	4.75	lb/hr	3-HR ROLLING AVE BASED ON 1-HR BLOCK	0		
NY-0095	CATTINES BELLPORT ENERGY CENTER	5/10/2006	COMBUSTION TURBINE	NATURAL GAS	2221	MMBTU/H	The fuel use of 20,282 MMCF/YR is for three turbines and three Duct burner.	OXIDATION CATALYST	2	PPMVD@15%O2		0			0		
*OH-0352	OREGON CLEAN ENERGY CENTER	6/18/2013	2 Combined Cycle Combustion Turbines-Siemens, without duct burners	Natural Gas	515600	MMSCF/rolling 12-months	Two Mitsubishi 2932 MMBtu/H combined cycle combustion turbines, both with 300 MMBtu/H duct burners, with dry low NOx combustors, SCR, and catalytic oxidizer. Will install either 2 Siemens or 2 Mitsubishi, not both (not determined). Short term limits are different with and without duct burners. This process without duct burners.	oxidation catalyst	13	lb/hr		72.2	T/YR	PER ROLLING 12 MONTHS	2	PPM	PPMVD AT 15% O2
*OH-0352	OREGON CLEAN ENERGY CENTER	6/18/2013	2 Combined Cycle Combustion Turbines-Mitsubishi, without duct burners	Natural Gas	47917	MMSCF/rolling 12-MO	Two Mitsubishi 2932 MMBtu/H combined cycle combustion turbines, both with 300 MMBtu/H duct burners, with dry low NOx combustors, SCR, and catalytic oxidizer. Will install either 2 Siemens or 2 Mitsubishi, not both (not determined). Short term limits are different with and without duct burners. This process without duct burners.	oxidation catalyst	13.7	lb/hr		183.9	T/YR	PER ROLLING 12 MONTHS	2	PPM	PPMVD AT 15% O2
*OH-0356	DUKE ENERGY HANGING ROCK ENERGY	12/18/2012	Turbines (4) (model GE 7FA) Duct Burners Off	NATURAL GAS	172	MW	Four GE 7FA combined cycle turbines, dry low NOx burners and selective catalytic reduction. These limits are for each of the 4 turbines individually, while operating with the duct burners off. This permit is a modification to RBLC OH-0252 to remove hourly restrictions on duct burners.	Good combustion practices burning natural gas	25.7	lb/hr		278	T/YR	PER ROLLING 12 MONTHS	6	PPM	PPMVD AT 15% O2 ON 24-H BLOCK AVERAGE
OK-0117	PSO SOUTHWESTERN POWER PLT	2/9/2007	GAS-FIRED TURBINES					COMBUSTION CONTROL	25	PPMVD	@15% O2	0			0		
OK-0129	CHOUTEAU POWER PLANT	1/23/2009	COMBINED CYCLE COGENERATION >=25MW	NATURAL GAS	1882	MMBTU/H	SIEMENS V84.3A	GOOD COMBUSTION	8	PPMV	1-HR AVG	51.32	PPMV	3-HR AVG	0		
OR-0041	WANAPA ENERGY CENTER	8/8/2005	COMBUSTION TURBINE &amp;amp; HEAT RECOVERY STEAM GENERATOR	NATURAL GAS	2384.1	MMBTU/H	GE 7241FA TURBINE AND DUCT BURNER. COMBUSTION TURBINE - 1,778.5 MMBTU/H DUCT BURNER - 605.6 MMBTU/H	OXIDATION CATALYST.	2	PPMDV @ 15% O2	3 HOURS	0			2	PPM @ 15% O2	
PA-0278	MOXIE LIBERTY LLC/ASYLUM POWER PL T	10/10/2012	Combined-cycle Turbines (2) - Natural gas fired	Natural Gas	3277	MMBTU/H	Two combine cycle Turbines, each with a combustion turbine and heat recovery steam generator with duct burner. Each combined-cycle process will be rated at 468 MW or less. The heat input rating of each combustion gas turbine is 2890 MMBtu/hr (HHV) or less, and the heat input rating of each supplemental duct burner is equal to 387 MMBtu/hr (HHV) or less.	Oxidation Catalyst	2	PPMVD	@ 15% O2	15.3	lb/hr	468 MW POWERBLOCK	2	PPMVD	@15% O2
*PA-0286	MOXIE ENERGY LLC/PATRIOT GENERATION PLT	1/31/2013	Combined Cycle Power Blocks 472 MW -(2)	Natural Gas	0		Two natural-gas-fired combined cycle powerblocks where each powerblock consists of a combustion turbine and heat recovery steam generator with duct burner.	CO Catalyst	2	PPMDV		109.3	T/YR	EACH UNIT	0		
*PA-0288	SUNBURY GENERATION LP/SUNBURY SES	4/1/2013	Combined Cycle Combustion Turbine AND DUCT BURNER (3)	Natural Gas	2538000	MMBTU/H	Three powerblocks consisting of three (3) natural gas fired F class combustion turbines coupled with three (3) heat recovery steam generators (HSRGs) equipped with natural gas fired duct burners. The Permittee shall select and install any of the turbine options listed below (or newer versions of these turbines if the Department determines that such newer versions achieve equivalent or better emissions rates and exhaust parameters) 1. General Electric 7FA (GE 7FA) 2. Siemens SGT6-5000F (Siemens F) 3. Mitsubishi M501G (Mitsubishi G) 4. Siemens SGT6-8000H (Siemens H) The emissions listed are for the Siemens SGT6-8000H unit.	Oxidation Catalyst	2	PPM	CORRECTED TO 15% OXYGEN	10.6	lb/hr	DUCT BURNERS NOT OPERATING	11.2	LB/H	DUCT BURNERS OPERATING
*PA-0291	HICKORY RUN ENERGY STATION	4/23/2013	COMBINED CYCLE UNITS #1 and #2	Natural Gas	3.4	MMCF/HR		CO catalyst	2	PPMVD @ 15% OXYGEN	WITH OR WITHOUT DUCT BURNER 12-MONTH ROLLING TOTAL	267.32		INCLUDING STARTUP AND SHUTDOWN	0		
*PA-0296	BERKS HOLLOW ENERGY ASSOC LLC/ONTELAUNEE	12/17/2013	Turbine, Combined Cycle, #1 and #2	Natural Gas	3046	MMBTU/hr	Equipped with SCR and Oxidation Catalyst	CO Catalyst	211.92	TPY		0			0		
*PA-0298	FUTURE POWER PA/GOOD SPRINGS NGCC FACILITY	3/4/2014	Turbine, COMBINED CYCLE UNIT (Siemens 5000)	Natural Gas	2267	MMBTU/hr		CO Catalyst	3	PPMVD	@ 15% OXYGEN	17.9	lb/hr	WITH DUCT BURNER	84.8	T/YR	BASED ON A 12-MONTH ROLLING TOTAL
TX-0516	CITY PUBLIC SERVICE JK SPRUCE ELECTRIC GENERATING UNIT 2	12/28/2005	SPRUCE POWER GENERATOR UNIT NO.2						4480	lb/hr		5256	T/YR		0		
TX-0546	PATILLO BRANCH POWER PLANT	6/17/2009	ELECTRICITY GENERATION	NATURAL GAS	350	MW	EACH TURBINE/HRSG WILL BE DESIGNED TO OUTPUT 350 MW. TURBINES BEING CONSIDERED FOR THE PROJECT ARE GE 7FA, GE 7FB, AND SIEMENS SGT6-5000F.	OXIDATION CATALYST	2	PPMVD	@ 15% O2, 3-HR ROLLING AVG	0			0		

**Table D-A-4**  
**Carbon Monoxide (CO) RBL Search - Combustion Turbines Firing Natural Gas (Without Duct Burning)**  
**Invenergy, LLC - Allegheny County Energy Center Project**

RBLCD	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
TX-0547	NATURAL GAS-FIRED POWER GENERATION FACILITY	6/22/2009	ELECTRICITY GENERATION	NATURAL GAS	250	MW	LAMAR POWER PARTNERS PROPOSES TO CONSTRUCT A NATURAL GAS-FIRED COMBINED-CYCLE POWER BLOCK TO BE BUILT AT THE EXISTING SITE IN LAMAR COUNTY, TEXAS. THE NEW POWER BLOCK WILL BE CAPABLE OF PRODUCING EITHER 620 OR 910 MEGAWATTS OF ELECTRICITY, DEPENDING UPON WHICH COMBUSTION TURBINE MODEL OPTION IS CHOSEN. THE PROPOSED PROJECT WOULD INCLUDE TWO COMBUSTION TURBINES (EITHER 170 MW GENERAL ELECTRIC 7FAS OR 250 MW MITSUBISHI 501GS), TWO HEAT RECOVERY STEAM GENERATORS WITH DUCT BURNERS AND ONE STEAM TURBINE. THE GE7FAS WOULD BE CAPABLE OF PRODUCING 620 MW OF ELECTRICITY IN COMBINED CYCLE MODE, WHILE THE M501GS WOULD PRODUCE 910 MW IN COMBINED CYCLE MODE.	GOOD COMBUSTION PRACTICES	15	PPMVD	@ 15% O2, 24-HR ROLLING AVG	0			0		
TX-0548	MADISON BELL ENERGY CENTER	8/18/2009	ELECTRICITY GENERATION	NATURAL GAS	275	MW	FOUR GE PG7121(EA) COMBINE CYCLE TURBINES FIRING NATURAL GAS WILL DIRECTLY GENERATE 75 MW; EACH HAS A 165 MMBTU/HR DUCT BURNER AND A HEAT RECOVERY STEAM GENERATOR. TWO HRSGs WILL TURN ONE 125 MW STEAM TURBINE AND THE OTHER TWO WILL TURN ANOTHER 125 MW STEAM TURBINE. THE TURBINE MAY OPERATE WITHOUT THE DUCT BURNER.	GOOD COMBUSTION PRACTICES	17.5	PPMVD	@ 15% O2, 1-HR ROLLING AVG	0			0		
TX-0590	KING POWER STATION	8/5/2010	Turbine	natural gas	1350	MW	The plant will be designed to generate 1350 nominal megawatts of power. There are two configuration scenarios: either four Siemens SGT6-5000F CTGs in combined-cycle mode (Scenario A) or four GE Frame 7FA CTGs in combined cycle mode (Scenario B). Scenario B also includes one or two auxiliary boilers.	good combustion practices with an oxidation catalyst	2	PPMVD AT 15% O2	THREE-HOUR ROLLING ROLLING 3-HR AT 15% OXYGEN /LOAD >= 60%	0			0		
TX-0600	THOMAS C. FERGUSON POWER PLANT	9/1/2011	Natural gas-fired turbines	natural gas	390	MW	(2) GE 7FA at 195 MW each, (1) steam turbine at 200 MW. Each turbine is equipped with an unfired heat recovery steam generator (HRSG), which provides steam for the steam turbine.	Good combustion practices and oxidation catalyst	4	PPMVD	@ 15% O2 ON A 24-HR ROLLING AVG	6	PPMVD	ROLLING 3-HR AT 15% OXYGEN /LOAD < 60%	0		
TX-0618	CHANNEL ENERGY CENTER LLC	10/15/2012	Combined Cycle Turbine	natural gas	180	MW	The turbine is a Siemens 501F rated at a nominal 180 MW and the duct burner will have a maximum design heat input of 475 MMBtu/hr.	Good combustion	4	PPMVD	@ 15% O2, 24-HR ROLLING AVG	0			0		
TX-0619	DEER PARK ENERGY CENTER	9/26/2012	Combined Cycle Turbine	natural gas	180	MW	natural gas-fired combined cycle turbine generator with a heat recovery steam generator equipped with a duct burner. The turbine is a Siemens 501F rated at a nominal 180 megawatts and the DB will have a maximum design rate capability of 725 million British thermal units per hour.	good combustion	4	PPMVD	@ 15% O2, 24-HR ROLLING AVG	0			0		
TX-0620	ES JOSLIN POWER PLANT	9/12/2012	Combined cycle gas turbine	natural gas	195	MW	The three combustion turbine generators (CTG) will be the General Electric 7FA, each with a maximum base-load electric power output of approximately 195 megawatts (MW). The steam turbine is rated at approximately 235 MW. This project also includes the installation of two emergency generators, one fire water pump, and auxiliary equipment. No duct burners.	good combustion	4	PPMVD	@ 15% O2, 24-HR ROLLING AVG	0			0		
*TX-0641	PINECREST ENERGY CENTER	11/12/2013	combined cycle turbine	natural gas	700	MW	The generating equipment consists of two natural gas-fired combustion turbines (CTs), each exhausting to a fired heat recovery steam generator (HRSG) to produce steam to drive a shared steam turbine generator. The steam turbine is rated at 271 MW of electric output. Three models of combustion turbines are being considered for this site: the General Electric 7FA.05, the Siemens SGT6-5000F(4), and the Siemens SGT6-5000F(5). The final selection of the combustion turbine will not be made until after the permit is issued. Plant output will range between 637 and 735 MW, depending on the model turbine selected. Duct Burners are rated at 750 MMBtu/hr each.	oxidation catalyst	2	PPMVD	3-HR ROLL AVG, 15% OXYGEN, 80-100% LOAD CORRECTED TO 15% O2, ROLLING 3 HR AVE	4	PPMVD	3-HR ROLL AVG, 15% OXYGEN, 60-80% LOAD	0		
*TX-0660	FGE TEXAS POWER I AND FGE TEXAS POWER II	3/24/2014	Alstom Turbine	Natural Gas	230.7	MW	Four (4) Alstom GT24 CTGs, each with a HRSG and DBs, max design capacity 409 MMBtu/hr	Oxidation catalyst	2	PPMVD	@ 15% O2, 3 HOUR ROLLING AVERAGE	0			0		
*TX-0678	FREEPORT LNG PRETREATMENT FACILITY	7/16/2014	Combustion Turbine	natural gas	87	MW	The exhaust heat from the turbine will be used to heat a heating medium which is used to regenerate rich amine from the acid gas removal system.	oxidation catalyst	4	PPMVD	15% O2, 24HR ROLLING AVG	0			0		
*TX-0687	WEST PLANT AND EAST PLANT CENTRAL HEAT AND POWER	10/13/2014	Two Combustion Turbine-Generators	Natural Gas	11	MW	Combined Cycle	Good combustion practices	50	PPM	ROLLING 12 MONTHS	4	PPM	1HR AVG	0		
*TX-0689	CEDAR BAYOU ELECTRIC GENERATION STATION	8/29/2014	Combined cycle natural gas turbines	Natural Gas	225	MW	(4) cogeneration turbines	OC	2	PPM	@ 15% O2	0			0		
*TX-0698	BAYPORT COMPLEX	9/5/2013		natural gas	90	MW	(4) GE 7EA turbines providing power and process steam	DLN and Closed Loop Emissions Controls (CLEC)	15	PPMVD	@ 15% O2	0			0		
*TX-0708	LA PALOMA ENERGY CENTER	2/7/2013	(2) combined cycle turbines	natural gas	650	MW	The specific equipment includes two combustion turbines (CTs) connected to electric generators, producing between 183 and 232 MW of electricity, depending on ambient temperature and the selected CT. The two HRSGs use duct burners rated at 750 MMBtu/hr each to supplement the heat energy from the CTs. The steam from the two HRSGs is combined and routed to a single steam turbine driving a third electric generator with an electricity output capacity of 271 MW. Depending on the selected CT, total plant output at 59A°F is between 637 MW and 735 MW.	oxidation catalyst	2	PPMVD	@ 15% O2, 3-HR ROLLING, 80-100% LOAD	4	PPMVD	@ 15% O2, 3-HR ROLLING, 60-80% LOAD	0		
*TX-0709	SAND HILL ENERGY CENTER	9/13/2013	Natural gas-fired combined cycle turbines	Natural Gas	173.9	MW	The applicant is considering three models of CT; one model will be selected and the permit revised to reflect the selection before construction begins. The three CT models are: (1) General Electric 7FA.04, (2) Siemens SGT6-5000F(4), or (3) Siemens SGT6-5000F(5).	OC	2	PPM	1HR AVG	0			0		
*TX-0710	VICTORIA POWER STATION	12/1/2014	combined cycle turbine	natural gas	197	MW	General Electric 7FA.04 at 197 MW nominal output. The duct burners will be capable of a maximum natural gas firing rate of up to 483 MMBtu/hr (HHV). The duct burners may be fired additional hours; however, total annual firing will not exceed the equivalent of 4,375 hours at maximum capacity per duct burner. The available capacity of the existing steam turbine will be increased from 125 MW in its existing 1x1x1 configuration to approximately 185 MW in the 2x2x1 configuration.	oxidation catalyst	4	PPMVD	@ 15% O2, 3-HR ROLLING AVERAGE	0			0		
*TX-0712	TRINIDAD GENERATING FACILITY	11/20/2014	combined cycle turbine	natural gas	497	MW	The facility will consist of a Mitsubishi Heavy Industries (MHI) J model gas fired combustion turbine nominally rated at 497 megawatts (MW) equipped with a HRSG and DB with a maximum design capacity of 402 million British thermal units per hour (MMBtu/hr). The gross nominal output of the CTG with HRSG and DB is 530 MW.	oxidation catalyst	4	PPMVD	@ 15% O2, 24-HR ROLLING AVERAGE	0			0		
*TX-0713	TENASKA BROWNSVILLE GENERATING STATION	4/29/2014	(2) combined cycle turbines	natural gas	274	MW	Each CTG is site-rated at 274 MW gross electric output at 62A°F ambient temperature. At this condition, two HRSGs with full duct burner firing produce enough steam to generate an additional 336 MW, for a total of 884 MW gross, or with about 5% losses, about 840 MW net electric output. Under summertime conditions, the net output is approximately 800 MW with the 2x1 CCGT configuration or about 400 MW with the 1x1 CCGT configuration.	oxidation catalyst	2	PPMVD	@ 15% O2, 24-HR ROLLING AVERAGE	0			0		

**Table D-A-4**  
**Carbon Monoxide (CO) RBLC Search - Combustion Turbines Firing Natural Gas (Without Duct Burning)**  
**Invenergy, LLC - Allegheny County Energy Center Project**

RBLCD	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION	
							The gas turbines will be one of three options:  (1) Two Siemens Model F5 (SF5) CTGs each rated at nominal capability of 225 megawatts (MW). Each CTG will have a duct fired HRSG with a maximum heat input of 688 million British thermal units per hour (MMBtu/hr).  (2) Two General Electric Model 7FA (GE7FA) CTGs each rated at nominal capability of 215 MW. Each CTG will have a duct fired HRSG with a maximum heat input of 523 MMBtu/hr.  (3) Two Mitsubishi Heavy Industry G Frame (MH501G) CTGs each rated at a nominal electric output of 263 MW. Each CTG will have a duct fired HRSG with a maximum heat input of 686 MMBtu/hr.											
*TX-0714	S R BERTRON ELECTRIC GENERATING STATION	12/19/2014	(2) combined cycle turbines	natural gas		240 MW		oxidation catalyst	4	PPMVD	@15% O2, ONE HOUR		2	PPMVD			@15% O2, ROLLING 12-MONTH	
*TX-0727	CEDAR BAYOU ELECTRIC GENERATING STATION	3/31/2015	Combined cycle turbines	Natural Gas		187 MW/turbine		Oxidation catalysts	15	PPMVD	15%O2		0				0	
*TX-0730	COLORADO BEND ENERGY CENTER	4/1/2015	Combined-cycle gas turbine electric generating facility	natural gas		1100 MW	combined cycle power plant that uses two combustion turbines and one steam turbine, model GE 7HA.02	SCR and oxidation catalyst	4	O2	PPMVD @ 15% O2	3-HR AVERAGE	0				0	
*TX-0751	EAGLE MOUNTAIN STEAM ELECTRIC STATION	6/18/2015	Combined Cycle Turbines (>25 MW) &lt; natural gas	natural gas		210 MW	Two power configuration options authorized Siemens &lt; 231 MW + 500 million British thermal units per hour (MMBtu/hr) duct burner GE &lt; 210 MW + 349.2 MMBtu/hr duct burner	Oxidation catalyst	2	PPM	ROLLING 24-HR AVERAGE		0				0	
*TX-0767	LON C. HILL POWER STATION	10/2/2015	Combined Cycle Turbines (>25 MW)	natural gas		195 MW	Two power configuration options authorized Siemens &lt; 240 MW + 250 million British thermal units per hour (MMBtu/hr) duct burner GE &lt; 195 MW + 670 MMBtu/hr duct burner	Oxidation Catalyst	2	PPM	ROLLING 24-HR AVERAGE		0				0	
VA-0315	WARREN COUNTY POWER PLANT - DOMINION	12/17/2010	COMBINED CYCLE TURBINE & DUCT BURNER, 3	Natural Gas		2996 MMBTU/H	Emissions are for one of three units (Mitsubishi natural gas-fired combustion turbine (CT) generator, Model M501 GAC).	Oxidation catalyst and good combustion practices.	1.5	O2	PPMVD @ 15% O2	ONE HR AVERAGE (W/O DUCT BURNER FIRING)	2.4	PPMVD			0	
*VA-0321	BRUNSWICK COUNTY POWER STATION	3/12/2013	COMBUSTION TURBINE GENERATORS, (3)	Natural Gas		3442 MMBTU/H	Three (3) Mitsubishi M501 GAC combustion turbine generators with HRSG duct burners (natural gas-fired).	Oxidation catalyst; good combustion practices.	1.5	O2	PPMVD @ 15% O2	AVG/WITHOUT DUCT BURNING	0				0	
*VA-0322	GREEN ENERGY PARTNERS/ STONEWALL, LLC	4/30/2013	Large combustion turbines (>25MW) CCT1 and CCT2	Natural Gas		2.23 MMBTU/hr	Throughput and Units above are for the GEF7.05. Siemens SGT6-5000F5. Throughput: 2.260 MMBTU/hr	Catalytic Oxidizer	0				0				0	
WA-0328	BP CHERRY POINT COGENERATION PROJECT	1/1/2005	GE 7FA COMBUSTION TURBINE & HEAT RECOVERY STEAM GENERATOR	NATURAL GAS		174 MW	THREE IDENTICAL CT & HRSG UNITS. EACH CT WILL HAVE AN ANNUAL AVERAGE CAPACITY RATING OF 1614 MMBTU/HR. EACH HRSG DUCT BURNER WILL HAVE A MAXIMUM FIRING RATE OF 105 MMBTU/HR.	LEAN PRE-MIX CT BURNER & OXIDATION CATALYST	2	PPMDV	3-HR @ 15%O2		0			0 PPM @ 15 % O2	UNITS NOT AVAILABLE *SEE NOTES	
*WY-0070	CHEYENNE PRAIRIE GENERATING STATION	8/28/2012	Combined Cycle Turbine (EP01)	Natural Gas		40 MW		Oxidation Catalyst	4	O2	PPMV AT 15% O2	1-HOUR 3-hour block average; Duct Burners Off	3.7	lb/hr		30-DAY ROLLING AVERAGE	32 T/YR	
	Astoria Energy LLC		Combustion Turbine	Natural Gas		1000 MW		Oxidation Catalyst	1.5	ppmvd @ 15% O2	1-hr average; Duct Burners Off		7.15	lb/hr		1-hr average; Duct Burners Off		
	Catoctin Power LLC		Combustion Turbine	Natural Gas		170 MW		DLN combustion design; oxidation catalyst	2	ppmvd @ 15% O2	Duct Burners Off					1-hr average; Duct Burners Off		
	Footprint Power Salem Harbor Development LP		Combustion Turbine	Natural Gas		346 MW		Oxidation Catalyst	8	lb/hr	1-hr average; Duct Burners Off	0.0045	lb/MMBtu			1-hr average; Duct Burners Off		
	Footprint Power Salem Harbor Development LP		Combustion Turbine	Natural Gas		346 MW		Oxidation Catalyst	2	ppmvd @ 15% O2	1-hr average; Duct Burners Off	0.0027	lb/MW-hr			1-hr average; Duct Burners Off		
	Kalama Energy Center		Combustion Turbine	Natural Gas		2247 MMBtu/hr		Oxidation Catalyst	2	ppmvd @ 15% O2	1-hr average		11.3	lb/hr		1-hr average		
	Kalama Energy Center		Combustion Turbine	Natural Gas		2247 MMBtu/hr		Oxidation Catalyst	131.1	tpv	12-mo rolling							
	Lawrence Energy Center LLC		Combustion Turbine	Natural Gas		180 MW		Oxidation Catalyst and GCP	2	ppmvd @ 15% O2	1-hr average							
	Lawrence Energy Center LLC		Combustion Turbine	Natural Gas		180 MW		Oxidation Catalyst and GCP	2	ppmvd @ 15% O2	1-hr average							
	GenCom Middletown LLC		Combustion Turbine	Natural Gas		474.9 MMBtu/hr			5	ppmvd @ 15% O2			8	lb/hr				
	PacifiCorp Energy		Block 1 CT	Natural Gas					3	ppmvd @ 15% O2	3-hour		14.1	lb/hr				
	PacifiCorp Energy		Block 2 CT	Natural Gas		629 MW			3	ppmvd @ 15% O2	3-hour		14.1	lb/hr				
	Pioneer Valley Russell City Energy Company, LLC		Combustion Turbine	Natural Gas		387 MW			2	ppmvd @ 15% O2	1-hr average							
	Sevier Power Company Power Plant		Combustion Turbine	Natural Gas		2,038.60 MMBtu/hr			2	ppmvd @ 15% O2	1-hr average							
	CPV Valley Energy Center Wawayanda, NY		Combustion Turbine	Natural Gas		580 MW			3	ppmvd @ 15% O2	3-hr average							
	Woodbridge Energy Center (CPV Shore, LLC)			Natural Gas		630 MW			2	ppmvd @ 15% O2	1-hr average							
				Natural Gas		2,307 MMBtu/hr			2	ppmvd @ 15% O2								
	PA STATE UNIV/UNIV PARK CAMPUS		COMBINED HEAT AND POWER DUAL-FIRED COMBUSTION TURBINE	Natural Gas		86.29 MMBtu/hr			1.3	ppmvd @ 15% O2								
	Hummel Station LLC		Combustion Turbine	Natural Gas		2,254.00 MMBtu/hr			2	ppmvd @ 15% O2			11.22					
	Cricket Valley Energy Center		Combustion Turbine	Natural Gas		1000 MW			2	ppmvd @ 15% O2	1-hr average							
	Effingham County Power		Combustion Turbine	Natural Gas		180 MW			2	ppmvd @ 15% O2	3-hr average							
	Gibson County Generation, LLC		Combustion Turbine	Natural Gas		417 MW			3	ppmvd @ 15% O3	24-hr average	0.0056	lb/MMBtu					
	Pioneer Valley Energy Center		Combustion Turbine	Natural Gas		2542 MMBtu/hr			2	ppm @ 15% O2			12.3	lb/hr				
	Russell City Energy Company, LLC		Combustion Turbine	Natural Gas		2038.6 MMBtu/hr			2	ppm @ 15% O2	1-hour		10	lb/hr				
	Tenaska Partners LLC		Combustion Turbine	Natural Gas		3147 MMBtu/hr			2	ppm @ 15% O2			15.9	lb/hr				



Table D-A-4  
Carbon Monoxide (CO) RBL Search - Combustion Turbines Firing Natural Gas (Without Duct Burning)  
Invenergy, LLC - Allegheny County Energy Center Project

RBL CID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
	UGI Development Co/ Hunlock Creek			Natural Gas	471.2	MMBtu/hr			4	ppm @15% O2	>32 °F						
	UGI Development Co/ Hunlock Creek			Natural Gas	471.2	MMBtu/hr			10	ppm @15% O2	<32 °F						
	Hawkeye Generating, LLC			Natural Gas	615	MW			0.0115	lb/MMBtu	3-hr rolling	194.79	ppm				
	Huntington Beach Energy Project			Natural Gas	939	MW (net)			2	ppm @15% O2	1-hr rolling						
	Hess Newark Energy Center		Combustion Turbine	Natural Gas	2320	MMBtu/hr			2	ppm @15% O2	3-hr rolling	0.0044	lb/MMBtu				
	York Energy Center Block 1				1574	MMBtu/hr			6	ppmvd	3-hour average, rolling by 1-hour						
	York Energy Center Block 2	6/15/2015			2512.5	MMBtu/hr	firing NG with duct burner		2	ppmvd @ 15% O2	3-hour block average; average of 3 test runs						
	York Energy Center Block 2	6/15/2015			2512.5	MMBtu/hr	firing NG without duct burner		2	ppmvd @ 15% O2	3-hour block average; average of 3 test runs						
	Shell Chemical Appalachia/Petrochemicals Complex	6/18/2015			664	MMBtu/hr	combustion turbines with duct burners		2	ppmvd @ 15% O2	1-hour average	lb/hr					
	Liberty Electric Power, LLC				1954	MMBtu/hr	Without DB		9	ppmvd @ 15% O2							
	Liberty Electric Power, LLC				1954	MMBtu/hr	With DB		20	ppmvd @ 15% O2							

**Table D-A-5**  
**Volatile Organic Compounds (VOC) RBLC Search - Combustion Turbines Firing Natural Gas (With Duct Burning)**  
**Invenery, LLC - Allegheny County Energy Center Project**

RBL CID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
CT-0161	KILLINGLY ENERGY CENTER	6/30/2017	Natural Gas w/Duct Firing	Natural Gas	2639	MMBtu/hr	Duct burner MRC is 946 MMBtu/hr	Oxidation Catalyst	1.6	PPMVD @ 15% O <sub>2</sub>		0			0		
FL-0364	SEMINOLE GENERATING STATION	3/21/2018	2-on-1 natural gas combined-cycle unit	Natural gas	3514	MMBtu/hr	Two GE 7HA.02 combustion turbines, each rated at 415 MW. Total unit capacity is approximately 1,183 MW (gross) and 1,050 MW (net). Due to netting, triggered PSD only for	Oxidation catalyst	1	PPMVD@15% O <sub>2</sub>	WITHOUT DUCT BURNER FIRING	2	PPMVD@15% O <sub>2</sub>	CT + DUCT BURNER	0		
LA-0313	ST. CHARLES POWER STATION	8/31/2016	SCPS Combined Cycle Unit 1A	Natural Gas	3625	MMBtu/hr		Catalytic oxidation and good combustion practices for normal operations, and good	61.27	LB/H	HOURLY MAXIMUM	226.16	T/YR	ANNUAL MAXIMUM	0		
LA-0313	ST. CHARLES POWER STATION	8/31/2016	SCPS Combined Cycle Unit 1B	Natural Gas	3625	MMBtu/hr		Catalytic oxidation and good combustion practices during normal operations, and	61.27	LB/H	HOURLY MAXIMUM	226.16	T/YR	ANNUAL MAXIMUM	0		
MI-0423	INDECK NILES, LLC	1/4/2017	FCGTGHRSG (2 Combined Cycle	Natural gas	8322	MMBTU/H	There are 2 combined cycle natural gas-fired combustion turbine generators (CTGs) with heat recovery steam generators (HRSG) identified as EUCGTGHRSG1 & EUCGTGHRSG2 in the	Oxidation Catalyst Technology and Good Combustion Practices	4	PPM	TEST PROTOCOL	0			0		
MI-0424	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH NEW COVER	12/5/2016	FCGTGHRSG (2 Combined cycle	Natural gas	554	MMBTU/H, each	Two combined cycle natural gas fired combustion turbine generators (CTGs) with heat recovery steam generators (HRSG) (EUCGTGHRSG10 & EUCGTGHRSG11 in FCGTGHRSG)	Oxidation catalyst technology and good combustion practices.	4	PPM AT 15% O <sub>2</sub>	TEST PROTOCOL	0			0		
*MI-0432	GENERATING FACILITY	7/30/2018	FG-TURBIDB1-3 (3 combined cycle	Natural gas	1230	MW	Three (3) combined-cycle combustion turbine (CT) / heat recovery steam generator (HRSG) trains. Each CT is a natural gas fired Mitsubishi model 501G, equipped with dry low NOx	An oxidation catalyst and good combustion practices.	1	PPMVD	HOURLY, EACH CT/HRSG TRAIN	48	T/YR	EACH CT/HRSG TRAIN: 12-MO	0		
*MI-0433	MEC NORTH, LLC AND MEC SOUTH, LLC	6/29/2018	EUCGTGHRSG (South Plant); A	Natural gas	500	MW	A combined-cycle natural gas combustion turbine generator (CTG) with heat recovery steam generator (HRSG) in a 1x1 configuration with a steam turbine generator (STG) for a	Oxidation catalyst technology and good combustion practices.	4	PPMVD	AT 15%O <sub>2</sub> ; NOT INCL.	0			0		
*MI-0433	MEC NORTH, LLC AND MEC SOUTH, LLC	6/29/2018	EUCGTGHRSG (North Plant); A	Natural gas	500	MW	Nominal 500 MW electricity production. Turbine rating of 3,080 MMBtu/hr (HHV) and HRSG direct burner rating of 755 MMBtu/hr (HHV)	Oxidation catalyst technology and good combustion practices.	4	PPMVD	AT 15%O <sub>2</sub> ; HOURLY	0			0		
TX-0819	GAINES COUNTY POWER PLANT	4/28/2017	Turbine with Heat COMBUSTION TURBINE	NATURAL GAS	426	MW	Four Siemens SCGT6-5000F's natural gas fired combustion turbines with HRSGs and Steam Turbine Generators	Oxidation catalyst and good combustion practices	3.5	PPMVD	15% O <sub>2</sub>	0			0		
*VA-0325	GREENSVILLE POWER STATION	6/17/2016	COMBUSTION TURBINE	natural gas	3227	MMBTU/HR	3227 MMBTU/HR CT with 500 MMBTU/HR Duct Burner, 3 on 1 configuration.	Oxidation Catalyst and good combustion practices	1.4	PPMVD		214.8	T/YR	PER TURBINE-12 MO ROLLING	0		
*WY-0029	HARRISON COUNTY POWER PLANT	3/27/2018	GE 7HA.02 Turbine	Natural Gas	3496.2	mmBtu/hr	Nominal 640 mWe	Oxidation Catalyst, Good Combustion Practices	11.4	LB/HR		54.8	TONS/YEAR		2	PPM	
CA-1177	OTAY MESA ENERGY CENTER LLC	7/22/2009	Gas turbine combined cycle	Natural gas	171.7	MW	All emission limits steady-state and include 1000 mmBtu/hr Duct Burner in operation			PPMVD @ 15% O <sub>2</sub>	1 HOUR	0			0		
CA-1178	APPLIED ENERGY LLC	3/20/2009	Gas turbine combined cycle	Natural gas	0		Source test results: 1.45 ppm NOx @ 15% O <sub>2</sub> or 2.19 lb/hr <0.22 ppm VOC @ 15%O <sub>2</sub> or <0.12 lb/hr	Oxidation catalyst		PPMVD @ 15% O <sub>2</sub>	1 HOUR	0			0		
CA-1211	COLUSA GENERATING STATION	3/11/2011	COMBUSTION TURBINES (NORMAL OPERATION)	NATURAL GAS	172	MW	TWO (2) NATURAL GAS FIRED TURBINES AT 172 MW EACH. BOTH TURBINES EQUIPPED WITH A 688 MMBTU/HR DUCT BURNER AND HRSG.			PPMVD @ 15% O <sub>2</sub>	@15% O <sub>2</sub> , 1-HR ROLLING AVG	11	lb/hr	1-HR ROLLING AVG	0		
CO-0056	ROCKY MOUNTAIN ENERGY CENTER, LLC	5/2/2006	NATURAL-GAS FIRED, COMBINED-CYCLE TURBINE	NATURAL GAS	300	MW	ONE NEW COMBINED-CYCLE TURBINE IS BEING ADDED TO AN EXISTING FACILITY.	NATURAL GAS QUALITY GAS ONLY FUEL, GOOD COMBUSTION PRACTICES AND OXIDATION CATALYST.	0.0029	1.8 MMBTU		0			0		
CT-0151	KLEEN ENERGY SYSTEMS, LLC	2/25/2008	SIEMENS SCGT6-5000F COMBUSTION TURBINE #1 AND #2 (NATURAL GAS FIRED) WITH 445 MMBTU/HR NATURAL GAS DUCT BURNER	NATURAL GAS	2.1	MMCF/H	THROUGHPUT IS FOR TURBINE ONLY WHEN FIRING NATURAL GAS TURBINE: 2136 MMBTU/HR (2.095 MMCF/HR) DUCT BURNER: 445 MMBTU/HR (0.436 MMCF/HR)	SOME REDUCTIONS OF VOC ARE GAINED FROM CO CATALYST BUT ARE NOT GUARANTEED. EMISSION RATES DO NOT INCORPORATE THIS POTENTIAL REDUCTION.	10	lb/hr	WO/UT DUCT BURNER	10.8	lb/hr	W/DUCT BURNER	PPMVD @ 15% O <sub>2</sub>	5	1-HR BLOCK
*DE-0023	NRG ENERGY CENTER DOVER	10/31/2012	UNIT 2- KD1	Natural Gas	655	MMBTU/H	EMISSION RATES ARE FOR EACH COMBUSTION TURBINE FIRING NATURAL GAS, NOT COMBINED. 500 MMBTU/HR Gas Turbine (Model: GE LM6000) rated at 52 MW and 155 MMBTU/HR Heat Recovery Steam Generator rated at 18 MW. The unit is required to operate a certified CEMS and COMS.	Oxidation catalyst system	6.4	lb/hr	1 HOUR AVERAGE	0			0		
FL-0263	FPL TURKEY POINT POWER PLANT	2/8/2005	170 MW COMBUSTION TURBINE, 4 UNITS	NATURAL GAS	170	MW	GENERATING CAPACITY: EACH OF THE FOUR GAS TURBINES HAS A NOMINAL GENERATING CAPACITY OF 170 MW FOR GAS FIRING (180 MW FOR OIL FIRING). EACH OF THE FOUR HEAT RECOVERY STEAM GENERATORS (HRSGS) PROVIDES STEAM TO THE SINGLE STEAM TURBINE ELECTRICAL GENERATOR, WHICH HAS A NOMINAL CAPACITY OF 470 MW. THE TOTAL NOMINAL GENERATING CAPACITY OF THE 4-ON-1 COMBINED CYCLE UNIT IS 1150 MW.  FUELS: EACH GAS TURBINE WILL FIRE NATURAL GAS AS THE PRIMARY FUEL AND ULTRA LOW SULFUR (0.0015% SULFUR) DISTILLATE OIL AS A RESTRICTED ALTERNATE FUEL. EMISSIONS OF ALL POLLUTANTS INCREASE WITH THE FIRING OF OIL. THE APPLICANT REQUESTS 500 HOURS PER YEAR PER GAS TURBINE (OR EQUIVALENT) FOR OIL FIRING.	VOC EMISSIONS WILL BE MINIMIZED BY THE EFFICIENT COMBUSTION OF NATURAL GAS AND DISTILLATE OIL AT HIGH TEMPERATURES.	1.3	PPMVD @ 15% O <sub>2</sub>	STACK TEST (CT NORMAL) GAS	1.9	PPMVD @ 15% O <sub>2</sub>	STACK TEST (DUCT BURNER) GAS	0		
FL-0285	PROGRESS BARTOW POWER PLANT	1/26/2007	COMBINED CYCLE COMBUSTION TURBINE SYSTEM (4-ON-1)	NATURAL GAS	1972	MMBTU/H	1876 MMBTU/HR WHEN FIRING DISTILLATE FUEL OIL. THE SYSTEM NOMINAL CAPACITY 1280 MW. EACH UNIT NOMINAL CAPACITY 215 MW (ISO) WITH DUCT-FIRED HEAT RECOVERY STEAM GENERATOR. 2117 MMBTU/HR FUEL OIL.	GOOD COMBUSTION	1.2	PPMVD @ 15% O <sub>2</sub>	@ 15% O <sub>2</sub> FOR CT ONLY - GAS	1.5	PPMVD	@ 15% O <sub>2</sub> FOR CT AND DB - GAS	0		
FL-0286	FPL WEST COUNTY ENERGY CENTER	1/10/2007	COMBINED CYCLE COMBUSTION GAS TURBINES - 6 UNITS	NATURAL GAS	2333	MMBTU/H	EACH COMBINED CYCLE UNIT SYSTEM (TWO & 3-ON-1 & 3-ON-1 & 3-ON-1) WILL CONSIST OF: THREE NOMINAL 250 MEGAWATT MODEL 501G GAS TURBINE-ELECTRICAL GENERATOR SETS WITH EVAPORATIVE INLET COOLING SYSTEMS; THREE SUPPLEMENTARY-FIRED HEAT RECOVERY STEAM GENERATORS (HRSGA,S) WITH SCR REACTORS; ONE NOMINAL 428 MMBTU/HOUR (LHV) GAS-FIRED DUCT BURNER LOCATED WITHIN EACH OF THE THREE HRSGA,S; THREE 149 FEET EXHAUST STACKS; ONE 26 CELL MECHANICAL DRAFT COOLING TOWER; AND A COMMON NOMINAL 500 MW STEAM-ELECTRICAL GENERATOR.		1.5	PPMVD @ 15% O <sub>2</sub>	GAS	6	PPMVD @ 15% O <sub>2</sub>	OIL	0		
FL-0303	FPL WEST COUNTY ENERGY CENTER UNIT 3	7/30/2008	THREE NOMINAL 250 MW CTG (EACH) WITH SUPPLEMENTARY-FIRED HRSG	NATURAL GAS	2333	MMBTU/H	FUELHEAT INPUT RATE (LHV): OIL2,117 MMBTU/H COMBINED CYCLE UNIT 3 WILL CONSIST OF: THREE NOMINAL 250 MW COMBUSTION TURBINE-ELECTRICAL GENERATORS (CTG) WITH EVAPORATIVE INLET COOLING SYSTEMS; THREE SUPPLEMENTARY-FIRED HEAT RECOVERY STEAM GENERATORS (HRSG) WITH SELECTIVE CATALYTIC REDUCTION (SCR) REACTORS AND A COMMON NOMINAL 500 MW STEAM-ELECTRICAL GENERATOR.		1.2	PPMVD @ 15% O <sub>2</sub>		1.5	PPMVD		0		
FL-0337	POLK POWER STATION	10/14/2012	Combine cycle power block (4 on 1) COMBINED CYCLE COMBUSTION TURBINE	natural gas	1160	MW	Based for the emission standard is either NSPS Subpart KKKK or Department BACT determinations. The BACT emission standards for NOX while operating in combined cycle are more stringent than the corresponding Subpart KKKK emissions standards of 15 and 42 ppmvd @ 15% O <sub>2</sub> on a 30-day rolling average for natural gas and fuel oil, respectively.	fuel Sulfur limits	1.4	PPMVD @ 15% O <sub>2</sub>		0			0		
GA-0127	PLANT McDONOUGH COMBINED CYCLE	1/7/2008	COMBINED CYCLE COMBUSTION TURBINE	NATURAL GAS	254	MW	6 TURBINES, 254 MW EACH (NOT INCLUDING STEAM RECOVERY), LIMITS ARE FOR EACH TURBINE (MITSUBISHI MODEL M501G). BACKUP FUEL FOR TWO TURBINES IS ULTRA-LOW SULFUR FUEL OIL.	OXIDATION CATALYST	1.8	PPMVD @ 15% O <sub>2</sub>	3-HOUR, WITH DUCT BURNER	1	PPM @ 15% O <sub>2</sub>	3-HOUR, WITHOUT DUCT BURNER	0		

**Table D-A-5**  
**Volatile Organic Compounds (VOC) RBLC Search - Combustion Turbines Firing Natural Gas (With Duct Burning)**  
**Invenergy, LLC - Allegheny County Energy Center Project**

RBL CID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARAD EMISSION LIMIT	UNIT	AVG TIME CONDITION
GA-0138	LIVE OAKS POWER PLANT	4/8/2010	COMBINED CYCLE COMBUSTION TURBINE - ELECTRIC GENERATING PLANT	NATURAL GAS	600	MW		GOOD COMBUSTION PRACTICES, CATALYTIC OXIDATION		2 PPMVD @ 15% O2	3-HOUR AVERAGE/CONDITION 2.11		0			0	
*IA-0107	MARSHALLTOWN GENERATING STATION	4/14/2014	Combustion turbine #1 - combined cycle COMBUSTION TURBINE	natural gas	2258	mmBtu/hr	two identical Siemens SGT6-5000F combined cycle turbines without duct firing, each at 2258 mmBtu/hr generating approx. 300 MW each.	catalytic oxidizer		1 PPMVD @ 15% O2	AVG. OF 3 ONE HOUR TEST RUNS		71.2 TON/YR	12-MONTH ROLLING		0	
BD-0018	LANGLEY GULCH POWER PLANT	6/25/2010	COMBINED CYCLE W/ DUCT BURNER	NATURAL GAS (ONLY)	2375.28	MMBTU/H	SIEMENS SGT6-5000F COMBUSTION TURBINE (NGCT, CCGT) FOR ELECTRICAL GENERATION, NOMINAL 269 MW AND 2.1466 MMSCF/Hr	CATALYTIC OXIDATION (CATOX), DRY LOW NOX (DLN), GOOD COMBUSTION PRACTICES (GCP)		2 PPMVD @ 15% O2	3-HR ROLLING / 15% O2 HOURLY AVG EXCEPT DURING SSM OR TUNING		11.5 PPMVD	3-HR ROLLING / 15% O2 DURING LL		0	
*IL-0112	NELSON ENERGY CENTER	12/28/2010	Electric Generation Facility (4) NATURAL GAS COMBINED CYCLE COMBUSTION TURBINES	Natural Gas	220	MW each	Two combined cycle combustion turbines followed by HRSGs with capability for supplemental fuel firing in HRSG for each combustion turbine using duct burners.			4 PPMVD @ 15% O2			0			0	
*IN-0158	ST. JOSEPH ENEGRY CENTER, LLC	12/3/2012	FOUR (4) NATURAL GAS COMBINED CYCLE COMBUSTION TURBINES	NATURAL GAS	2300	MMBTU/H	Four GE 7FA combined cycle turbines, dry low NOx burners and selective catalytic reduction. These limits are for each of the 4 turbines individually, while operating with the duct burners on. This permit is a modification to RBLCL OH-0252 to remove hourly restrictions on duct burners.	OXIDIZED CATALYST		1 PPMVD @ 15% O2	3 HOURS		2 PPMVD	3 HOURS		0	
LA-0224	ARSENAL HILL POWER PLANT	3/20/2008	TWO COMBINED CYCLE GAS TURBINES	NATURAL GAS	2110	MMBTU/H	CTG-1 TURBINE/DUCT BURNER (EQT012) CTG-2 TURBINE/DUCT BURNER(EQT013)	PROPER OPERATING PRACTICES	12.06	lb/hr	MAX		0		4.9 PPMVD@15%O2		ANNUAL AVERAGE
LA-0254	NINEMILE POINT ELECTRIC GENERATING PLANT	8/16/2011	COMBINED CYCLE TURBINE GENERATORS (UNITS 6A & 6B)	NATURAL GAS	7146	MMBTU/H	TURBINES ALSO PERMITTED TO BURN NO. 2 FUEL OIL AND ULTRA LOW SULFUR DIESEL.	GOOD COMBUSTION PRACTICES	1.4	PPMVD @ 15% O2	HOURLY AVERAGE W/O DUCT BURNER		PPMVD @ 15% O2	HOURLY AVERAGE W/ DUCT BURNER		0	
LA-0257	SABINE PASS LNG TERMINAL	12/6/2011	Combined Cycle Refrigeration Compressor Turbines (8)	natural gas	286	MMBTU/H		Good combustion practices and fueled by natural gas		0.66	lb/hr	HOURLY MAXIMUM		0		0	
*MA-0039	SALEM HARBOR STATION REDEVELOPMENT	1/30/2014	Combustion Turbine with Duct Burner	Natural Gas	2449	MMBTU/hr	two 315 MW (nominal) GE Energy 7F Series 5 Rapid Response Combined Cycle Combustion Turbines with Duct Burners and 31 MW (estimated) steam turbine generators	Oxidation catalyst		1 PPMVD @ 15% O2	1 HR AVG EXCLUDING SS/NO DUCT FIRING		1.7 PPMVD@15% O2	1 HR AVG EXCLUDING SS/DUCT FIRING		0	
*MD-0041	CPV ST. CHARLES	4/23/2014	2 COMBINED-CYCLE COMBUSTION TURBINES	NATURAL GAS	725	MEGAWATT	TWO GENERAL ELECTRIC (GE) F-CLASS ADVANCED COMBINED CYCLE COMBUSTION TURBINES (CTS) WITH A NOMINAL GENERATING CAPACITY OF 725 MW, COUPLED WITH A HEAT RECOVERY STEAM GENERATOR (HRSG) EQUIPPED WITH DUCT BURNERS, DRY LOW-NOX COMBUSTORS, OXIDATION CATALYST	OXIDATION CATALYST AND GOOD COMBUSTION PRACTICES		1 PPMVD @ 15% O2	3-HOUR BLOCK AVERAGE, EXCLUDING SU/SD		3.2 lb/hr	3-HOUR BLOCK AVERAGE, EXCLUDING SU/SD		0	
*MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014	2 COMBINED CYCLE COMBUSTION TURBINES, WITH DUCT FIRING	NATURAL GAS	1000	MW	TWO MITSUBISHI & Ispaqo; & Ispaqo; G&Ispaqo; & Ispaqo; MODEL COMBUSTION TURBINE GENERATORS (CTS) WITH A NOMINAL GENERATING CAPACITY OF 270 MW CAPACITY EACH, COUPLED WITH A HEAT RECOVERY STEAM GENERATOR (HRSG) EQUIPPED WITH DUCT BURNERS, DRY LOW-NOX COMBUSTORS, SELECTIVE CATALYTIC REDUCTION (SCR), OXIDATION CATALYST	USE OF PIPELINE NATURAL GAS, GOOD COMBUSTION PRACTICES, AND USE OF AN OXIDATION CATALYST	1.6	PPMVD @ 15% O2	3-HOUR BLOCK AVERAGE, EXCLUDING SU/SD		6720 LB/EVENT	COLD STARTUP		0	
MI-0366	BERRIEN ENERGY, LLC	4/13/2005	3 COMBUSTION TURBINES AND DUCT BURNERS	NATURAL GAS	1584	MMBTU/H	EACH TURBINE IS EQUIPPED WITH A HEAT RECOVERY STEAM GENERATOR (HRSG). EACH HRSG IS EQUIPPED WITH A NATURAL GAS FIRED DUCT BURNER (650 MMBTU/H). TOTAL NOMINAL PLAN GENERATING CAPACITY WITHOUT DUCT FIRING IS 800 MW. A MAX OUTPUT OF 1100 MW THROUGH SUPPLEMENTAL FIRING OF HRSGS.	CATALYTIC OXIDIZER PROVIDES SOME CONTROL FOR VOCs.	3.2	lb/hr			95.3 T/YR			0	
*MI-0405	MIDLAND COGENERATION VENTURE	4/23/2013	Natural gas fueled combined cycle combustion turbine generators (CTG) with HRSG	Natural gas	2237	MMBTU/H	Throughput is 2,237 MMBTU/H for each CTG	Equipment is permitted as following flexible group (FG): FG-CTG1-2: Two natural gas fired CTGs with each turbine containing a heat recovery steam generator (HRSG) to operate in combined cycle. The two CTGs (with HRSG) are connected to one steam turbine generator. Each CTG is equipped with a dry low NOx (DLN) burner and a selective catalytic reduction (SCR) system.	Good combustion practices	0.0018	LB/MMBTU	EACH CTG, TEST PROTOCOL		0		0	
*MI-0405	MIDLAND COGENERATION VENTURE	4/23/2013	Natural gas fueled combined cycle combustion turbine generators (CTG) with HRSG and duct burner (DB)	Natural gas	2486	MMBTU/H	The throughput is 2,486 MMBTU/H for each CTG/DB. Natural gas fired CTG with DB for HRSG; 4 total.	This process is permitted in a flexible group format, identified in the permit as FG-CTG/DB1-2 and is for two natural gas fired CTGs with each turbine containing a heat recovery steam generator (HRSG) to operate in combined cycle. The two CTGs (with HRSG) are connected to one steam turbine generator. Each CTG is equipped with a dry low NOx (DLN) burner and a selective catalytic reduction (SCR) system. Additionally, the HRSG is operating with a natural gas fired duct burner for supplemental firing.	Good combustion practices	0.004	LB/MMBTU	TEST PROTOCOL		0		0	
*MI-0410	THETFORD GENERATING STATION	7/25/2013	FGCCA or FGCCB-4 nat. gas fired CTG w/ DB for HRSG	natural gas	2587	MMBTU/H heat input, each CTG	Technology A (4 total) is 2587 MMBTU/H design heat input each CTG. Technology B (4 total) is 2688 MMBTU/H design heat input each CTG. Permit was issued for either of two F Class turbine technologies with slight variations in emission rates. Applicant will select one technology. Installation is two separate CTG/HRSG trains driving one steam turbine electrical generator; Two 2X1 Blocks. Each CTG will be rated at 211 to 230 MW (gross) output and the station nominal generating capacity will be up to 1,400 MW.	Efficient combustion control plus catalytic oxidation system.		0			0			0	
*MI-0412	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	12/4/2013	FG-CTG/HRSG: 2 Combined cycle CTGs with HRSGs with duct burners	natural gas	647	MMBTU/H for each CTG/HRSG	This process is identified in the permit as FGCTG/HRSG; it is 2 combined cycle natural gas-fired combustion turbine generators (CTGs) with Heat Recovery Steam Generators (HRSGs) equipped with duct burners for supplemental firing (EUCTG/HRSG1 & EUCTG/HRSG2 in FGCTG/HRSG). The total hours for both units combined for startup and shutdown shall not exceed 635 hours per 12-month rolling time period. Each CTG/HRSG shall not exceed 647 MMBtu/hr on a fuel heat input basis.	Oxidation catalyst technology and good combustion practices.		PPMVD @ 15% O2	TEST PROTOCOL		0		0		
MN-0060	HIGH BRIDGE GENERATING PLANT	8/12/2005	2 COMBINED-CYCLE COMBUSTION TURBINES	NATURAL GAS ONLY	330	MEGAWATTS	EMISSIONS FOR EACH TURBINE.	GOOD COMBUSTION PRACTICES.		2 PPMVD @ 15% O2	W/O DUCT-BURNER		13 PPM @ 15% O2	WITH DUCT-BURNER FIRING		0	
MN-0066	NORTHERN STATES POWER CO. DBA XCEL ENERGY - RIVERSIDE PLANT	5/16/2006	TURBINE, COMBINED CYCLE (2)	NATURAL GAS	1885	mmbtu/h	TWO COMBUSTION TURBINES, THROUGHPUT FOR EACH	GOOD COMBUSTION PRACTICES	4.6	PPMVD @ 15% O2	3-HR BLOCK		0		0		

**Table D-A-5**  
**Volatile Organic Compounds (VOC) RBLC Search - Combustion Turbines Firing Natural Gas (With Duct Burning)**  
**Invenergy, LLC - Allegheny County Energy Center Project**

RBL CID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
MN-0071	FAIRBAULT ENERGY PARK	6/5/2007	COMBINED CYCLE COMBUSTION TURBINE W/DUCT BURNER	NATURAL GAS	1758	MMBTU/H	COMBUSTION TURBINE PERMITTED TO USE NG & NO. 2 OIL; DUCT BURNER PERMITTED TO USE NG & NO. 2 OIL. DUCT BURNER ALSO AUTHORIZED TO COMBUST LIQUID BIOFUEL.		1.5	PPMVD @ 15% O <sub>2</sub>	CTG NG NO DB	3	PPMVD	CTG NG & DB NG OR OIL	3.5	PPMVD	CTG OIL & DB NOT OPERATE OR DB NG OR OIL
NC-0101	FORSYTH ENERGY PLANT	9/29/2005	TURBINE & DUCT BURNER, COMBINED CYCLE, NAT GAS	NATURAL GAS	1844.3	MMBTU/H	Each of these units have a natural gas-fired HRSG & a natural gas fired duct burner. Limits for this process are for turbines and duct burners.	GOOD COMBUSTION PRACTICES AND EFFICIENT PROCESS DESIGN	5.7	PPMVD @ 15% O <sub>2</sub>		0			0		
NJ-0074	WEST DEPTFORD ENERGY	5/6/2009	TURBINE, COMBINED CYCLE	NATURAL GAS	17298	MMBTU/3YR		CO OXIDATION CATALYST AND GOOD COMBUSTION PRACTICES	1.9	PPMVD @ 15% O <sub>2</sub>	AVERAGE OF 3 TESTS-EACH 60 MIN	0			0		
*NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITH DUCT BURNER - SIEMENS	Natural Gas	33691	MMBTU/FT PER YEAR	Natural Gas Usage <= 33,691 MMBH <sup>3</sup> /yr per 365 consecutive day period, rolling one day basis (per two Siemens turbines and two associated duct burners) The heat input rate of the Siemens turbine will be 2,356 MMBtu/hr(HHV) with a 62.1 duct burner MMBtu/hr(HHV).	Oxidation catalyst and pollution prevention (use of natural gas a clean burning fuel)	2	PPMVD @ 15% O <sub>2</sub>	AVERAGE OF THREE ONE HOUR TESTS	6.6	lb/hr	AVERAGE OF THREE ONE HOUR TESTS	0		
*NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITH DUCT BURNER - GENERAL ELECTRIC	Natural gas	33691	MMCU/vear.	Natural Gas Usage <= 33,691 MMBH <sup>3</sup> /yr per 365 consecutive day period, rolling one day basis (per two turbines and two duct burners) The heat input rate of each General Electric combustion each turbine will be 2,312 MMBtu/hr(HHV) with a 164.4 MMBtu/hr duct burner	CO Oxidation Catalyst and good combustion practices and use natural gas only as a clean burning fuel	2	PPMVD @ 15% O <sub>2</sub>	AVERAGE OF THREE ONE HOUR TESTS	7.2	lb/hr	AVERAGE OF THREE ONE HOUR TESTS	0		
*NJ-0082	WEST DEPTFORD ENERGY STATION	7/18/2014	Combined Cycle Combustion Turbine with Duct Burner	Natural Gas	20282	MMCF/YR	This is a 427 MW Siemens Combined Cycle Turbine with duct burner Heat Input rate of the turbine = 2276 MMBtu/hr (HHV) Heat Input rate of the Duct burner= 777 MMBtu/hr(HHV) The fuel use of 20,282 MMCF/YR is for three turbines and three Duct burners. THE FACILITY CONSISTS OF 3 WESTINGHOUSE MODEL 501G GAS COMBINED CYCLE TURBINES (245 MW BASE LOAD), HEAT RECOVERY STEAM GENERATORS, AND STEAM TURBINE GENERATORS (115 MW) WITH SELECTIVE CATALYTIC REDUCTION (SCR ) FOR NOX EMISSION CONTROL. NOX EMISSIONS FROM THE TURBINES ARE ADDITIONALLY CONTROLLED BY AMMONIUM HYDROXIDE INJECTION	Oxidation catalyst and use of natural gas a clean burning fuel	1	PPMVD@15%O <sub>2</sub>	AVERAGE OF THREE STACK TEST RUNS	4	lb/hr	AVERAGE OF THREE STACK TEST RUNS	0		
NY-0098	ATHENS GENERATING PLANT	1/19/2007	FUEL COMBUSTION (GAS)	NATURAL GAS	3100	MMBTU/H		GOOD COMBUSTION CONTROL	4	PPMVD @ 15% O <sub>2</sub>	3 HOUR BLOCK AVERAGE/ STEADY STATE	16.8	lb/hr	3 HOUR BLOCK AVERAGE/ STEADY STATE	4	PPMVD @ 15% O <sub>2</sub>	3 HOUR BLOCK AVERAGE/ STEADY STATE
NY-0100	EMPIRE POWER PLANT	6/23/2005	FUEL COMBUSTION (NATURAL GAS)	NATURAL GAS	2099	MMBTU/H		OXIDATION CATALYST	1	PPMVD @ 15% O <sub>2</sub>	AS PER EPA METHOD 25A	1	O <sub>2</sub>	AS PER EPA METHOD 25A	0		
NY-0100	EMPIRE POWER PLANT	6/23/2005	FUEL COMBUSTION (NATURAL GAS) DUCT BURNING	NATURAL GAS	646	MMBTU/H		OXIDATION CATALYST	7	PPMVD @ 15% O <sub>2</sub>	AS PER EPA METHOD 25A	7	O <sub>2</sub>	AS PER EPA METHOD 25A	0		
*OH-0352	OREGON CLEAN ENERGY CENTER	6/18/2013	2 Combined Cycle Combustion Turbines-Siemens, with duct burners	Natural Gas	51560	MMSCF/rolling 12-MO	Two Siemens 2932 MMBtu/H combined cycle combustion turbines, both with 300 MMBtu/H duct burners, with dry low NOx combustors, SCR, and catalytic oxidizer. Will install either 2 Siemens or 2Mitsubishi, not both (not determined). Short term limits are different with and without duct burners.	oxidation catalyst	5.9	lb/hr		28.6	T/YR	PER ROLLING 12 MONTHS	1.9	PPM	PPMVD AT 15% O <sub>2</sub>
*OH-0352	OREGON CLEAN ENERGY CENTER	6/18/2013	2 Combined Cycle Combustion Turbines-Mitsubishi, with duct burners	Natural Gas	47917	MMSCF/rolling 12-MO	Two Mitsubishi 2932 MMBtu/H combined cycle combustion turbines, both with 300 MMBtu/H duct burners, with dry low NOx combustors, SCR, and catalytic oxidizer. Will install either 2 Siemens or 2Mitsubishi, not both (not determined). Short term limits are different with and without duct burners.	oxidation catalyst	7.3	lb/hr		56	T/YR	PER ROLLING 12 MONTHS	2	PPM	PPMVD AT 15% O <sub>2</sub>
*OH-0356	DUKE ENERGY HANGING ROCK ENERGY	12/18/2012	Turbines (4) (model GE 7FA) Duct Burners On COMBINED CYCLE COGENERATION & 25MW COMBUSTION TURBINE & DUCT BURNER	NATURAL GAS	172	MW	Four GE 7FA combined cycle turbines, dry low NOx burners and selective catalytic reduction. These limits are for each of the 4 turbines individually, while operating with the duct burners on. This permit is a modification to RBLC OH-0252 to remove hourly restrictions on duct burners.	Using efficient combustion technology	7.3	lb/hr		44.1	T/YR	PER ROLLING 12 MONTHS	0		
OK-0129	CHOUTEAU POWER PLANT	1/23/2009	COMBINED CYCLE COGENERATION & 25MW COMBUSTION TURBINE & DUCT BURNER	NATURAL GAS	1882	MMBTU/H	SIEMENS V84.3A	GOOD COMBUSTION	0.3	PPMVD @ 15% O <sub>2</sub>	3-HR AVG @ 15% O <sub>2</sub>	5.27	lb/hr	3-HR AVG @ 15% O <sub>2</sub>	0		
OR-0041	WANAPA ENERGY CENTER	8/8/2005	COMBUSTION TURBINE & DUCT BURNER - GE 7241FA TURBINE AND DUCT BURNER.	NATURAL GAS	2384.1	MMBTU/H	COMBUSTION TURBINE - 1,778.5 MMBTU/HR DUCT BURNER - 605.6 MMBTU/HR	OXIDATION CATALYST	0		SEE POLLUTANT NOTE	0			0		
*OR-0050	TROUTDALE ENERGY CENTER, LLC	3/5/2014	Mitsubishi M501-GAC combustion turbine, combined cycle configuration with duct burner.	natural gas	2988	MMBTU/hr	or ULSD. Duct burner 499 MMBtu/hr, natural gas	Oxidation catalyst; Limit the time in startup or shutdown.	2	PPMVD @ 15% O <sub>2</sub>	3-HR ROLLING AVERAGE ON NG	5	PPMDV @ 15% O <sub>2</sub>	3-HR ROLLING AVERAGE ON ULSD	0		
PA-0278	MOXIE LIBERTY LLC/ASYLUM POWER PL T	10/10/2012	Combined-cycle Turbines (2) - Natural gas fired	Natural Gas	3277	MMBTU/H	Two combine cycle Turbines, each with a combustion turbine and heat recovery steam generator with duct burner. Each combined-cycle process will be rated at 468 MW or less. The heat input rating of each combustion gas turbine is 2890 MMBtu/hr (HHV) or less, and the heat input rating of each supplemental duct burner is equal to 387 MMBtu/hr (HHV) or less.	Oxidation Catalyst	1	PPMVD @ 15% O <sub>2</sub>	WITHOUT DUCT BURNER	1.5	PPMVD	WITH DUCT BURNER	0		
*PA-0286	MOXIE ENERGY LLC/PATRIOT GENERATION PLT	1/31/2013	Combined Cycle Power Blocks 472 MW - (2)	Natural Gas	0		Two natural-gas-fired combined cycle powerblocks where each powerblock consists of a combustion turbine and heat recovery steam generator with duct burner.	CO Catalyst	1	PPMVD @ 15% O <sub>2</sub>	WITHOUT DUCT BURNER	1.5	PPMDV	WITH DUCT BURNER	33.8	T/YR	EACH UNIT
*PA-0288	SUNBURY GENERATION LP/SUNBURY SES	4/1/2013	Combined Cycle Combustion Turbine and DUCT BURNER (3)	Natural Gas	2538000	MMBTU/H	Three powerblocks consisting of three (3) natural gas fired F class combustion turbines coupled with three (3) heat recovery steam generators (HRSGs) equipped with natural gas fired duct burners. The Permittee shall select and install any of the turbine options listed below (or newer versions of these turbines if the Department determines that such newer versions achieve equivalent or better emissions rates and exhaust parameters) 1. General Electric 7FA (GE 7FA) 2. Siemens SGT6-5000F (Siemens F) 3. Mitsubishi M501G (Mitsubishi G) 4. Siemens SGT6-8000H (Siemens H) The emissions listed are for the Siemens SGT6-8000H unit.	Oxidation Catalyst	1	PPMVD @ 15% O <sub>2</sub>	3 lb/hr, DUCT BURN NOT OPERATING, 15% O <sub>2</sub>	3.9	PPM	10.8 LB/HR, DUCT BURN OPERATING, 15% O <sub>2</sub>	0		
*PA-0291	HICKORY RUN ENERGY STATION	4/23/2013	COMBINED CYCLE UNITS #1 and #2	Natural Gas	3.4	MMCF/HR		Oxidation Catalyst	1.5	PPMVD @ 15% O <sub>2</sub>	WITH OR WITHOUT DUCT BURNER 12-MONTH ROLLING TOTAL	93.44	TPY 12-MONTH ROLLING	INCLUDING STARTUP AND SHUTDOWN	0		
*PA-0296	BERKS HOLLOW ENERGY ASSOC LLC/ONTELAUNEE	12/17/2013	Turbine, Combined Cycle, #1 and #2	Natural Gas	2046	MMBTU/hr	Equipped with SCR and Oxidation Catalyst		93.85	T/YR		1.9	O <sub>2</sub>	PPMVD @ 15%	0		

**Table D-A-5**  
**Volatile Organic Compounds (VOC) RBLC Search - Combustion Turbines Firing Natural Gas (With Duct Burning)**  
**Invenergy, LLC - Allegheny County Energy Center Project**

RBL CID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
*PA-0298	FUTURE POWER PA/GOOD SPRINGS NGCC FACILITY	3/4/2014	Turbine, COMBINED CYCLE UNIT (Siemens 5000)	Natural Gas	2267	MMBtu/hr		CO Catalyst		PPMVD @ 15% O <sub>2</sub>	@ 15% OXYGEN		7.4	lb/hr	34.1	TPY	ON A 12-MONTH ROLLING TOTAL
TX-0497	INEOS CHOCOLATE BAYOU FACILITY	8/29/2006	COGENERATION TRAIN 2 AND 3 (TURBINE AND DUCT BURNER EMISSIONS)	NATURAL GAS	35	MW	THE EMISSIONS ARE PER TRAIN.	BP AMOCO PROPOSES PROPER COMBUSTION CONTROL AS BACT FOR CO AND VOC EMISSIONS FROM THE TURBINES AND DUCT BURNERS.	6.14	lb/hr		40.88	T/YR		0		
TX-0502	NACOGDOCHES POWER STERNE GENERATING FACILITY	6/5/2006	WESTINGHOUSE/ SIEMENS MODEL SW501F GAS TURBINE W/ 416.5 MMBTU DUCT BURNERS	NATURAL GAS	190	MW		STEA POWER LLC REPRESENTS GOOD COMBUSTION PRACTICES FOR THE CONTROL OF VOLATILE ORGANIC COMPOUND (VOC) EMISSIONS FROM THE COMBUSTION TURBINES AND DUCT FIRED HRSG. VOC EMISSIONS FROM THE COMBUSTION TURBINE WILL BE 4.3 PPMVD.	13.8	lb/hr		112.8	T/YR		0		
TX-0516	CITY PUBLIC SERVICE JK SPRUCE ELECTRIC GENERATING UNIT 2	12/28/2005	SPRUCE POWER GENERATOR UNIT NO 2						29	lb/hr			88	T/YR		0	
TX-0546	PATILLO BRANCH POWER PLANT	6/17/2009	ELECTRICITY GENERATION	NATURAL GAS	350	MW	EACH TURBINE-HRSG WILL BE DESIGNED TO OUTPUT 350 MW. TURBINES BEING CONSIDERED FOR THE PROJECT ARE GE 7FA, GE 7FB, AND SIEMENS SGT6-5000F.	OXIDATION CATALYST	PPMVD @ 15% O <sub>2</sub>	@ 15% O <sub>2</sub> , 3-HR ROLLING AVG		0			0		
TX-0547	NATURAL GAS-FIRED POWER GENERATION FACILITY	6/22/2009	ELECTRICITY GENERATION	NATURAL GAS	250	MW	LAMAR POWER PARTNERS PROPOSES TO CONSTRUCT A NATURAL GAS-FIRED COMBINED-CYCLE POWER BLOCK TO BE BUILT AT THE EXISTING SITE IN LAMAR COUNTY, TEXAS. THE NEW POWER BLOCK WILL BE CAPABLE OF PRODUCING EITHER 620 OR 910 MEGAWATTS OF ELECTRICITY, DEPENDING UPON WHICH COMBUSTION TURBINE MODEL OPTION IS CHOSEN. THE PROPOSED PROJECT WOULD INCLUDE TWO COMBUSTION TURBINES (EITHER 170 MW GENERAL ELECTRIC 7FAS OR 250 MW MITSUBISHI 501GS), TWO HEAT RECOVERY STEAM GENERATORS WITH DUCT BURNERS AND ONE STEAM TURBINE. THE GE7FAS WOULD BE CAPABLE OF PRODUCING 620 MW OF ELECTRICITY IN COMBINED CYCLE MODE, WHILE THE 501GS WOULD PRODUCE 910 MW IN COMBINED CYCLE MODE.	GOOD COMBUSTION PRACTICES	PPMVD @ 15% O <sub>2</sub>	@ 15% O <sub>2</sub> , 24-HR ROLLING AVG		0			0		
TX-0548	MADISON BELL ENERGY CENTER	8/18/2009	ELECTRICITY GENERATION	NATURAL GAS	275	MW	FOUR GE PG7121(EA) COMBINE CYCLE TURBINES FIRING NATURAL GAS WILL DIRECTLY GENERATE 75 MW; EACH HAS A 165 MMBTU/HR DUCT BURNER AND A HEAT RECOVERY STEAM GENERATOR. TWO HRSG'S WILL TURN ONE 125 MW STEAM TURBINE AND THE OTHER TWO WILL TURN ANOTHER 125 MW STEAM TURBINE. THE TURBINE MAY OPERATE WITHOUT THE DUCT BURNER.	GOOD COMBUSTION PRACTICES	PPMVD @ 15% O <sub>2</sub>	@ 15% O <sub>2</sub> , 1-HR ROLLING AVG		0			0		
TX-0590	KING POWER STATION	8/5/2010	Turbine	natural gas	1350	MW	The plant will be designed to generate 1350 nominal megawatts of power. There are two configuration scenarios: either four Siemens SGT6-5000F CTGs in combined-cycle mode (Scenario A) or four GE Frame 7FA CTGs in combined cycle mode (Scenario B). Scenario B also includes one or two auxiliary boilers.	DLN burners in combination with an oxidation catalyst	PPMVD @ 15% O <sub>2</sub>	THREE-HOUR ROLLING AVERAGE		0			0		
TX-0600	THOMAS C. FERGUSON POWER PLANT	9/1/2011	Natural gas-fired turbines	natural gas	390	MW	Each turbine is equipped with an unfired heat recovery steam generator (HRSG), which provides steam for the steam turbine.	Natural gas, good combustion practices and oxidation catalyst	PPMVD @ 15% O <sub>2</sub>	3-HR AT 15% OXYGEN		0			0		
TX-0618	CHANNEL ENERGY CENTER LLC	10/15/2012	Combined Cycle Turbine	natural gas	180	MW	The turbine is a Siemens 501F rated at a nominal 180 MW and the duct burner will have a maximum design heat input of 475 MMBtu/hr.	Good combustion	PPMVD @ 15% O <sub>2</sub>	@15% O <sub>2</sub>		0			0		
TX-0619	DEER PARK ENERGY CENTER	9/26/2012	Combined Cycle Turbine	natural gas	180	MW	natural gas-fired combined cycle turbine generator with a heat recovery steam generator equipped with a duct burner. The turbine is a Siemens 501F rated at a nominal 180 megawatts and the DB will have a maximum design rate capability of 725 million British thermal units per hour.	good combustion, use of natural gas	PPMVD @ 15% O <sub>2</sub>	@15% O <sub>2</sub>		0			0		
*TX-0641	PINECREST ENERGY CENTER	11/12/2013	combined cycle turbine	natural gas	700	MW	The generating equipment consists of two natural gas-fired combustion turbines (CTs), each exhausting to a fired heat recovery steam generator (HRSG) to produce steam to drive a shared steam turbine generator. The steam turbine is rated at 271 MW of electric output. Three models of combustion turbines are being considered for this site: the General Electric 7FA.05, the Siemens SGT6-5000F(4), and the Siemens SGT6-5000F(5). The final selection of the combustion turbine will not be made until after the permit is issued. Plant output will range between 637 and 735 MW, depending on the model turbine selected. Duct Burners are rated at 750 MMBtu/hr each.	oxidation catalyst	PPMVD @ 15% O <sub>2</sub>	INITIAL STACK TEST, 15% OXYGEN		0			0		
*TX-0660	FGE TEXAS POWER I AND FGE TEXAS POWER II	3/24/2014	Alstom Turbine	Natural Gas	230.7	MW	Four (4) Alstom GT24 CTGs, each with a HRSG and DBs, max design capacity 409 MMBtu/hr	Oxidation catalyst, good combustion practices	PPMVD @ 15% O <sub>2</sub>	CORRECTED TO 15% O <sub>2</sub> , ROLLING 3 HR AVE		0			0		
*TX-0678	FREEPORT LNG PRETREATMENT FACILITY	7/16/2014	Combustion Turbine	natural gas	87	MW	The exhaust heat from the turbine will be used to heat a heating medium which is used to regenerate rich amine from the acid gas removal system.	oxidation catalyst	PPMVD @ 15% O <sub>2</sub>	1 HOUR BASED ON STACK TEST		0			0		
*TX-0708	LA PALOMA ENERGY CENTER	2/7/2013	(2) combined cycle turbines	natural gas	650	MW	The specific equipment includes two combustion turbines (CTs) connected to electric generators, producing between 183 and 232 MW of electricity, depending on ambient temperature and the selected CT. The two HRSGs use duct burners rated at 750 MMBtu/hr each to supplement the heat energy from the CTs. The steam from the two HRSGs is combined and routed to a single steam turbine driving a third electric generator with an electricity output capacity of 271 MW. Depending on the selected CT, total plant output at 594°F is between 637 MW and 735 MW.	oxidation catalyst	PPMVD @ 15% O <sub>2</sub>	@15% O <sub>2</sub> , 3-HR ROLLING		0			0		
*TX-0709	SAND HILL ENERGY CENTER	9/13/2013	Natural gas-fired combined cycle turbines	Natural Gas	173.9	MW	The applicant is considering three models of CT; one model will be selected and the permit revised to reflect the selection before construction begins. The three CT models are: (1) General Electric 7FA.04, (2) Siemens SGT6-5000F(4), or (3) Siemens SGT6-5000F(5).		PPMVD @ 15% O <sub>2</sub>	1HR. AVG.		0			0		
*TX-0710	VICTORIA POWER STATION	12/1/2014	combined cycle turbine	natural gas	197	MW	General Electric 7FA.04 at 197 MW nominal output. The duct burners will be capable of a maximum natural gas firing rate of up to 483 MMBtu/hr (HHV). The duct burners may be fired additional hours; however, total annual firing will not exceed the equivalent of 4,375 hours at maximum capacity per duct burner. The available capacity of the existing steam turbine will be increased from 125 MW in its existing 1x1x1 configuration to approximately 185 MW in the 2x2x1 configuration.	oxidation catalyst	PPMVD @ 15% O <sub>2</sub>	@15% O <sub>2</sub> , 3-HR ROLLING AVERAGE		0			0		

**Table D-A-5**  
**Volatile Organic Compounds (VOC) RBLC Search - Combustion Turbines Firing Natural Gas (With Duct Burning)**  
**Invenery, LLC - Allegheny County Energy Center Project**

RBL CID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
*TX-0712	TRINIDAD GENERATING FACILITY	11/20/2014	combined cycle turbine	natural gas	497	MW	The facility will consist of a Mitsubishi Heavy Industries (MHI) J model gas fired combustion turbine nominally rated at 497 megawatts (MW) equipped with a HRSG and DB with a maximum design capacity of 402 million British thermal units per hour (MMBtu/hr). The gross nominal output of the CTG with HRSG and DB is 530 MW.	oxidation catalyst		PPMVD @ 15% O <sub>2</sub>	@15% O <sub>2</sub> 1-HR	0			0		
*TX-0713	TENASKA BROWNSVILLE GENERATING STATION	4/29/2014	(2) combined cycle turbines	natural gas	274	MW	Each CTG is site-rated at 274 MW gross electric output at 62Â°F ambient temperature. At this condition, two HRSGs with full duct burner firing produce enough steam to generate an additional 336 MW, for a total of 884 MW gross, or with about 5% losses, about 840 MW net electric output. Under summertime conditions, the net output is approximately 800 MW with the 2x1 CCGT configuration or about 400 MW with the 1x1 CCGT configuration. The gas turbines will be one of three options:	oxidation catalyst		PPMVD @ 15% O <sub>2</sub>	@15% O <sub>2</sub> 3-HR AVERAGE	0			0		
*TX-0714	S R BERTRON ELECTRIC GENERATING STATION	12/19/2014	(2) combined cycle turbines	natural gas	240	MW	(1) Two Siemens Model F5 (SF5) CTGs each rated at nominal capability of 225 megawatts (MW). Each CTG will have a duct fired HRSG with a maximum heat input of 688 million British thermal units per hour (MMBtu/hr). (2) Two General Electric Model 7FA (GE7FA) CTGs each rated at nominal capability of 215 MW. Each CTG will have a duct fired HRSG with a maximum heat input of 523 MMBtu/hr. (3) Two Mitsubishi Heavy Industry G Frame (MHI501G) CTGs each rated at a nominal electric output of 263 MW. Each CTG will have a duct fired HRSG with a maximum heat input of 686 MMBtu/hr.	oxidation catalyst		PPMVD @ 15% O <sub>2</sub>	@15% O <sub>2</sub>	0			0		
*TX-0730	COLORADO BEND ENERGY CENTER	4/1/2015	Combined-cycle gas turbine electric generating facility	natural gas	1100	MW	Combined cycle power plant that uses two combustion turbines and one steam turbine, model GE 7HA.02	SCR and oxidation catalyst		PPMVD @ 15% O <sub>2</sub>	3-HR AVERAGE	0			0		
*TX-0751	EAGLE MOUNTAIN STEAM ELECTRIC STATION	6/18/2015	Turbines (kg&t;25 MW) â€” natural gas	natural gas	210	MW	Two power configuration options authorized Siemens â€” 231 MW + 500 million British thermal units per hour (MMBtu/hr) duct burner GE â€” 210 MW + 349.2 MMBtu/hr duct burner	Oxidation catalyst		2 PPM		0			0		
*TX-0767	LON C. HILL POWER STATION	10/2/2015	Combined Cycle Turbines (kg&t;25 MW)	natural gas	195	MW	Two power configuration options authorized Siemens â€” 240 MW + 250 million British thermal units per hour (MMBtu/hr) duct burner GE â€” 195 MW + 670 MMBtu/hr duct burner	oxidation catalyst		PPMVD @ 15% O <sub>2</sub>		0			0		
VA-0315	WARREN COUNTY POWER PLANT - DOMINION	12/17/2010	COMBINED CYCLE TURBINE & DUCT BURNER, 3 COMBUSTION TURBINE GENERATORS, (3)	Natural Gas	2996	MMBTU/H	Emissions are for one of three units (Mitsubishi natural gas-fired combustion turbine (CT) generator, Model M501 GAC).	Oxidation catalyst and good combustion practices.	2.6	lb/hr	3 HR. AVG. (WITHOUT DUCT BURNER FIRING)	6.1	lb/hr	3 HR. AVG. (WITH DUCT BURNER FIRING)	0		
*VA-0321	BRUNSWICK COUNTY POWER STATION	3/12/2013	GE 7FA COMBUSTION TURBINE & HEAT RECOVERY STEAM GENERATOR	NATURAL GAS	3442	MMBTU/H	Three (3) Mitsubishi M501 GAC combustion turbine generators with HRSG duct burners (natural gas-fired).	Oxidation catalyst; good combustion practices.	PPMVD @ 15% O <sub>2</sub>		AVG/WITHOUT DUCT BURNING	PPMVD @ 15% O <sub>2</sub>		3 H AVG/WITH	0		
WA-0328	BP CHERRY POINT COGENERATION PROJECT	1/11/2005	THREE IDENTICAL CT & HRSG UNITS. EACH CT WILL HAVE AN ANNUAL AVERAGE CAPACITY RATING OF 1614 MMBTU/HR. EACH HRSG DUCT BURNER WILL HAVE A MAXIMUM FIRING RATE OF 105 MMBTU/HR.	NATURAL GAS	174	MW	This entry is for both of two identical units at the facility.	LEAN PRE-MIX CT BURNER & OXIDATION CATALYST	0			0			0		*SEE NOTES
*WV-0025	MOUNDSVILLE COMBINED CYCLE POWER PLANT	11/21/2014	Combined Cycle Turbine Duct Burner	Natural Gas	2419.61	mmBtu/Hr	Nominal 197 mW General Electric Frame 7FA.04 Turbine w/ Duct Burner - throughput denotes aggregate heat input of turbine and duct burner (HTV).	Oxidation Catalyst & Good Combustion Practices	5.3	lb/hr		0.0022	LB/MMBTU		2	PPM	@ 15% O <sub>2</sub>
*WY-0070	CHEYENNE PRAIRIE GENERATING STATION	8/28/2012	Combined Cycle Turbine (EP01)	Natural Gas	40	MW		Oxidation Catalyst		PPMVD @ 15% O <sub>2</sub>	1-HOUR		3	lb/hr	3-HOUR AVERAGE	14.7	T/YR
	Astoria Energy LLC		Combustion Turbine	Natural Gas	1000	MW		Low NOx Burners	0.003	lb/MMBtu	1-hr average; Duct Burners On	5.92	lb/hr	1-hr average; Duct Burners On			
	Footprint Power Salem Harbor Development LP		Combustion Turbine	Natural Gas	346	MW		Low NOx Burners	5.4	lb/hr	1-hr average; Duct Burners On	0.0022	lb/MMBtu	1-hr average; Duct Burners On			
	Footprint Power Salem Harbor Development LP		Combustion Turbine	Natural Gas	346	MW		Low NOx Burners	1.7	lb/hr	1-hr average; Duct Burners On	0.016	lb/MW-hr	1-hr average; Duct Burners On			
	Crickett Valley Energy Center		Combustion Turbine	Natural Gas	1000	MW		Oxidation Catalyst		PPMVD @ 15% O <sub>2</sub>	1-hr average; Duct Burners On						
	Effingham County Power		Combustion Turbine	Natural Gas	180	MW		Oxidation Catalyst		PPMVD @ 15% O <sub>2</sub>	1-hr average; Duct Burners On						
	Hawkeye Generating, LLC		Combustion Turbine	Natural Gas					0.0038	lb/MMBtu	1-hr average; Duct Burners On						
	Huntington Beach Energy Project		Combustion Turbine	Natural Gas	939	MW				PPMVD @ 15% O <sub>2</sub>	3-hr average; Duct Burners On						
	Hess Newark Energy Center		Combustion Turbine	Natural Gas						PPMVD @ 15% O <sub>2</sub>	Avg of 3 stack test runs; Duct Burners On						
	Kalama Energy Center		Combustion Turbine	Natural Gas	2247	MMBtu/hr		Oxidation Catalyst		PPMVD @ 15% O <sub>2</sub>	1-hr average	3.2	lb/hr	1-hr average			
	Kalama Energy Center		Combustion Turbine	Natural Gas	2247	MMBtu/hr		Oxidation Catalyst	47.8	tpv	12-mo rolling						
	Lawrence Energy Center LLC		Combustion Turbine	Natural Gas	180	MW			0.00231	lb/MMBtu		4.2	lb/hr				
	Lawrence Energy Center LLC		Combustion Turbine	Natural Gas	180	MW			0.00302	lb/MMBtu		4.2	lb/hr				
	Lawrence Energy Center LLC		Combustion Turbine	Natural Gas	180	MW			0.0375	lb/MMBtu							
	Lawrence Energy Center LLC		Combustion Turbine	Natural Gas	180	MW			0.015	lb/MMBtu							
	Lawrence Energy Center LLC		Combustion Turbine	Natural Gas	180	MW			0.0105	lb/MMBtu		30.7	lb/hr				
	Lawrence Energy Center LLC		Combustion Turbine	Natural Gas	180	MW			0.00517	lb/MMBtu		30.7	lb/hr				
	GenComm Middletown LLC		Combustion Turbine	Natural Gas	474.9	MMBtu/hr				1.11	lb/hr						
	PacificCorp Energy		Block 2 CT	Natural Gas	629	MW				PPMVD @ 15% O <sub>2</sub>	3-hour	14.1	lb/hr				
	Sevier Power Company Power Plant		Combustion Turbine	Natural Gas	580	MW				PPMVD @ 15% O <sub>2</sub>	3-hr average						
	ST. JOSEPH ENEGRY CENTER, LLC		FOUR (4) NATURAL GAS COMBINED CYCLE COMBUSTION TURBINES	NATURAL GAS	2300	MMBTU/H	EACH TURBINE IS EQUIPPED WITH DRY LOW NOX BURNERS, NATURAL GAS FIRED DUCT BURNERS, AND A HEAT RECOVERY STEAM GENERATOR IDENTIFIED AS HRSG#. NOX EMISSIONS CONTROLLED BY SELECTIVE CATALYTIC REDUCTION SYSTEMS (SCR#) ALONG WITH CO AND VOC EMISSIONS CONTROLLED BY OXIDATION CATALYST SYSTEMS (CAT#) IN EACH TURBINE. EACH STACK HAS CONTINUOUS EMISSIONS MONITORS FOR NOX AND CO. COMBINED NOMIAL POWER OUTPUT IS 1,350 MW.	OXIDIZED CATALYST		PPMVD @ 15% O <sub>2</sub>	3 HOURS						

**Table D-A-5**  
**Volatile Organic Compounds (VOC) RBLC Search - Combustion Turbines Firing Natural Gas (With Duct Burning)**  
**Invenery, LLC - Allegheny County Energy Center Project**

RBL CID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
	WARREN COUNTY POWER PLANT - DOMINION		COMBINED CYCLE TURBINE &amp; DUCT BURNER, 3	Natural Gas	2996	MMBTU/H	Emissions are for one of three units (Mitsubishi natural gas-fired combustion turbine (CT) generator, Model MS01 GAC).	Oxidation catalyst and good combustion practices.	1.6 O2	PPMVD @ 15%	3 HR AVERAGE (WITH DUCT BURNER FIRING)						
	CPV Valley Energy Center Wawayanda, NY			Natural Gas	630	MW			0.7 O2	PPMVD @ 15%	1-hr average						
	CPV Valley Energy Center Wawayanda, NY		Combustion Turbine	Natural Gas	630	MW			1.8 O2	PPMVD @ 15%	1-hr average						
	Woodbridge Energy Center (CPV Shore, LLC)		Combustion Turbine	Natural Gas	2,807	MMBTU/hr			2 O2	PPMVD @ 15%							
	Woodbridge Energy Center (CPV Shore, LLC)			Natural Gas	2,307	MMBTU/hr			1 O2	PPMVD @ 15%							
	PA STATE UNIV/UNIV PARK CAMPUS		COMBINED HEAT AND POWER DUAL-FIRED COMBUSTION TURBINE	Natural Gas	86.29	MMBTU/hr			10.8 O2	PPMVD @ 15%							
	Hummel Station LLC		Combustion Turbine	Natural Gas	2,254.00	MMBTU/hr			3.9 O2	PPMVD @ 15%		10.7	lb/hr				
	Hummel Station LLC		Combustion Turbine	Natural Gas	2,254.00	MMBTU/hr			1 O2	PPMVD @ 15%		3	lb/hr				
	Tenaska Partners LLC		Combustion Turbine	Natural Gas	3147	MMBTU/hr			2.4 O2	PPMVD @ 15%							
	Tenaska Partners LLC		Combustion Turbine	Natural Gas	3147	MMBTU/hr			1.4 O2	PPMVD @ 15%							
	UGI Development Co/ Hunlock Creek			Natural Gas	471.2	MMBTU/hr			1.2 O2	PPMVD @ 15%	>32 °F						
	UGI Development Co/ Hunlock Creek			Natural Gas	471.2	MMBTU/hr			4 O2	PPMVD @ 15%	<32 °F						
	Hawkeye Generating, LLC			Natural Gas	615	MW			0.0038	lb/MMBtu		54.16	tpy				
	Hawkeye Generating, LLC			Natural Gas	615	MW			0.0016	lb/MMBtu		54.16	tpy				
	Huntington Beach Energy Project			Natural Gas	939	MW (net)			1 O2	PPMVD @ 15%	1-hr rolling						
	Huntington Beach Energy Project			Natural Gas	939	MW (net)			1 O2	PPMVD @ 15%	3-hr rolling						
	Hess Newark Energy Center		Combustion Turbine	Natural Gas	2320	MMBTU/hr			1 O2	PPMVD @ 15%		0.001	lb/MMBtu				
	Hess Newark Energy Center		Combustion Turbine	Natural Gas	2266	MMBTU/hr			2 O2	PPMVD @ 15%		0.0025	lb/MMBtu				
	York Energy Center Block 2	6/15/2015			2512.5	MMBTU/hr	firing NG with duct burner		1.9 O2	PPMVD @ 15%	3-hour block average; average of 3 test runs						
	Shell Chemical Appalachia/Petrochemicals Complex	6/18/2015			664	MMBTU/hr	each of the combustion turbines with duct burners		1 O2	PPMVD @ 15%	1-hour average						
	Calpine/Bethlehem Energy Center				122	MW			1.2 O2	PPMVD @ 15%							
	Liberty Electric Power, LLC				1954	MMBTU/hr	Without DB		1.4 O2	PPMVD @ 15%							
	Liberty Electric Power, LLC				1954	MMBTU/hr	With DB		4.7 O2	PPMVD @ 15%							

**Table D-A-6**  
**Volatile Organic Compounds (VOC) RBLC Search - Combustion Turbines Firing Natural Gas (Without Duct Burning)**  
**Invenergy, LLC - Allegheny County Energy Center Project**

RBLCD	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
CT-0161	KILLINGLY ENERGY CENTER	6/30/2017	Natural Gas w/o Duct	Natural Gas	2969	MMBtu/hr	Throughput is for turbine only	Oxidation Catalyst	0.7	PPMVD @15% O2		0					
FL-0356	ORKECHOBEE CLEAN ENERGY	3/9/2016	Combined-cycle elec	Natural gas	3096	MMBtu/hr per turbine	3-on-1 combined cycle unit. GE 7HA.02 turbines, approximately 350 MW per turbine. Total unit capacity is approximately 1050 MW.	Complete combustion minimizes VOC	1	PPMVD@15%O2	GAS OPERATION	2	PPMVD@15%O2	ULSD OPERATING	0		
FL-0363	DANIA BEACH ENERGY CENTER	12/4/2017	2-on-1 combined cycle	Natural gas	4000	MMBtu/hr	Two nominal 430 MW combustion turbines, coupled to a steam turbine generator	Clean fuels	1	PPMVD@15% O2	FOR NATURAL GAS	2.6	PPMVD@15% O2	FOR OIL OPERATING	0		
FL-0364	SEMINOLE GENERATING STATION	3/21/2018	2-on-1 natural gas combustion	Natural gas	3514	MMBtu/hr	Two GE 7HA.02 combustion turbines, each rated at 415 MW. Total unit capacity is approximately 830 MW.	Oxidation catalyst	1	PPMVD@15% O2	WITHOUT DUCT	2	PPMVD@15% O2	CT + DUCT BURNING	0		
							Plant nominal 1,150 MW electricity production. Turbines are each rated at 3,658 MMBTU/H and HRSG duct burners are each rated at 800 MMBTU/H.										
*MI-0435	BELLE RIVER COMBINED CYCLE	7/16/2018	FGCTGHRSG (EUC)	Natural gas	0		The HRSGs are not capable of operating independently from the CTGs.	Oxidation catalyst technology and good combustion practices.	0.0026	LB/MMBTU	EACH UNIT; HOUR	0.0013	LB/MMBTU	EACH UNIT W/O DUCT	0		
*PA-0310	CPV FAIRVIEW ENERGY CENTER	09/02/2016 +	Combustion turbine	Natural gas	0		Emission limits are for each turbine fueled by NG and operating without duct burner being fired and do not include startup/shutdown emissions.	1	PPMVD @ 15% O2			0			0		
TX-0788	NICHES STATION	3/24/2016	Combined Cycle Gas	Natural gas	231	MW	2 CTGs to operate in simple cycle & combined cycle modes. 231 MW (Siemens) or 210 MW (GE)	OXIDATION CATALYST	2	PPM		0					
TX-0789	DECORDOVA STEAM ELECTRIC	3/8/2016	Combined Cycle Gas	Natural gas	231	MW	2 CTGs to operate in simple cycle & combined cycle modes. 231 MW (Siemens) or 210 MW (GE)	OXIDATION CATALYST	2	PPM		0					
TX-0790	PORT ARTHUR LNG EXPORT	2/17/2016	Refrigeration Compressor	Natural gas	10	M TONNES/YR	Four GE Frame 7E gas turbines for refrigeration and compression at the site	Dry low NOx burners and good combustion practices	2	PPM	3-HR AVG	0					
TX-0790	PORT ARTHUR LNG EXPORT	2/17/2016	Simple Cycle Electric	Natural gas	34	MW	Nine GE PGT25-G4 gas turbines for electrical generation at the site at 34 MW/turbine	OXIDATION CATALYST	2	PPM	3-HR AVERAGE	0					
TX-0817	CHOCOLATE BAYOU STEAM	2/17/2017	Combined Cycle Gas	NATURAL GAS	50	MW	2 UNITS EACH 50 MW GE LM6000	OXIDATION CATALYST	1	PPMVD		0					
*VA-0325	GREENSVILLE POWER STATION	6/17/2016	COMBUSTION TURBINE	natural gas	3227	MMBTU/Hr	3227 MMBTU/Hr CT with 500 MMBTU/Hr Duct Burner, 3 on 1 configuration.	Oxidation Catalyst and good combustion practices	1.4	PPMVD		214.8	T/YR	PER TURBINE-12	0		
							Nominal 640 mW										
*WV-0029	HARRISON COUNTY POWER PLANT	3/27/2018	GE 7HA.02 Turbine	Natural Gas	3496.2	mmBtu/hr	All emission limits steady-state and include 1000 mmBtu/hr Duct Burner in operation	Oxidation Catalyst, Good Combustion Practices	11.4	LB/HR		54.8	TONS/YEAR		2	PPM	
CA-1177	OTAY MESA ENERGY CENTER LLC	7/22/2009	Gas turbine combined cycle	Natural gas	171.7	MW	Source test results: 1.45 ppm NOx @ 15% O2 or 2.19 lb/hr <0.22 ppm VOC @15%O2 or <0.12 lb/hr	2	PPMVD@15% OXYGEN	1 HOUR	0			0			
CA-1178	APPLIED ENERGY LLC	3/20/2009	Gas turbine combined cycle	Natural gas	0			PPMVD AT 15%	2	O2	1 HOUR	0			0		
CO-0056	ROCKY MOUNTAIN ENERGY CENTER, LLC	5/2/2006	NATURAL-GAS FIRED, COMBINED-CYCLE TURBINE	NATURAL GAS	300	MW	ONE NEW COMBINED-CYCLE TURBINE IS BEING ADDED TO AN EXISTING FACILITY.	NATURAL GAS QUALITY GAS ONLY FUEL, GOOD COMBUSTION PRACTICES AND OXIDATION CATALYST.	0.0029	LB/MMBTU		0					
*CO-0073	PUEBLO AIRPORT GENERATING STATION	7/22/2010	Four combined cycle combustion turbines	natural gas	373	mmBtu/hr	Three GE, LMS6000 PF, natural gas-fired, combined cycle CTG, rated at 373 MMBtu per hour each, based on HHV and one (1) HRSG each with no Duct Burners	good combustion control and catalytic oxidation	4	PPMVD AT 15% O2	AVE OVER STACK TEST LENGTH	0			0		
							500 MMBTU/hr Gas Turbine (Model: GE LM6000) rated at 52 MW and 155 MMBTU/hr Heat Recovery Steam Generator rated at 18 MW. The unit is required to operate a certified CEMS and CEMS.				1 HOUR AVERAGE	0			0		
*DE-0023	NRG ENERGY CENTER DOVER	10/31/2012	UNIT 2 - KDI	Natural Gas	655	MMBTU/H	Basis for the emission standard is either NSPS Subpart KKKK or Department BACT determinations.	Oxidation catalyst system	6.4	lb/hr		0			0		
							The BACT emission standards for NOx while operating in combined cycle are more stringent than the corresponding Subpart KKKK emissions standards of 15 and 42 ppmvd @15% O2 on a 30-day rolling average for natural gas and fuel oil, respectively.								0		
FL-0337	POLK POWER STATION	10/14/2012	Combine cycle power block (4 on 1)	natural gas	1160	MW	6 TURBINES, 254 MW EACH (NOT INCLUDING STEAM RECOVERY); LIMITS ARE FOR EACH TURBINE (NATURAL GAS MODEL 450/G). BACKUP FUEL FOR TWO TURBINES IS ULTRA-LOW SULFUR FUEL OIL.	fuel Sulfur limits	1.4	PPMVD @ 15% O2		0			0		
GA-0127	PLANT McDONOUGH COMBINED CYCLE	1/7/2008	COMBINED CYCLE COMBUSTION TURBINE	NATURAL GAS	254	MW		OXIDATION CATALYST	1.8	PPMVD @ 15% O2	3-HOUR, WITH DUCT BURNER	1	PPMVD @ 15% O2	3-HOUR, WITH DUCT BURNER	0		
GA-0138	LIVE OAKS POWER PLANT	4/8/2010	COMBINED CYCLE COMBUSTION TURBINE - ELECTRIC GENERATING PLANT	NATURAL GAS	600	MW		GOOD COMBUSTION PRACTICES, CATALYTIC OXIDATION	2	PPMVD @ 15% O2	3-HOUR AVERAGE/CONDITION 2.1.1	0			0		
*IA-0107	MARSHALLTOWN GENERATING STATION	4/14/2014 #1	Combustion turbine	natural gas	2258	mmBtu/hr	two identical Siemens SGT6-5000F combined cycle turbines without duct firing, each at 2258 mmBtu/hr generating approx. 300 MW each.	catalytic oxidizer	1	PPMVD @ 15% O2	AVG OF 3 ONE HOUR TEST RUNS	71.2	TON/YR	12-MONTH ROLLING TOTAL	0		
*IA-0107	MARSHALLTOWN GENERATING STATION	4/14/2014 #2	Combustion turbine	natural gas	2258	mmBtu/hr			1	PPMVD @ 15% O2	AVERAGE OF 3 ONE-HOUR TEST RUNS	71.2	TON/YR	12-MONTH ROLLING TOTAL	0		
LA-0192	CRESCENT CITY POWER	6/6/2005	GAS TURBINES - 187 MW (2)		2006	MMBTU/H		CO OXIDATION CATALYST AND GOOD COMBUSTION PRACTICES	2.8	lb/hr	HOURLY MAXIMUM	12.3	T/YR	ANNUAL MAXIMUM	1.1	PPM @ 15% O2	ANNUAL AVERAGE
LA-0257	SABINE PASS LNG TERMINAL	12/6/2011	Combined Cycle Refrigeration Compressor Turbines (8)	natural gas	286	MMBTU/H	GE LM2500-G4	Good combustion practices and fueled by natural gas	0.66	lb/hr	HOURLY MAXIMUM	0			0		
							Throughput is 2,237 MMBTU/H for each CTG										
*MI-0405	MIDLAND COGENERATION VENTURE	4/23/2013	Natural gas fueled combined cycle combustion turbine generators (CTG) with HRSG	Natural gas	2237	MMBTU/H	Equipment is permitted as following flexible group (FG): FG-CTG1-2: Two natural gas fired CTGs with each turbine containing a heat recovery steam generator (HRSG) to operate in combined cycle. The two CTGs (with HRSG) are connected to one steam turbine generator. Each CTG is equipped with a dry low NOx (DLN) burner and a selective catalytic reduction (SCR) system.	Good combustion practices	0.0018	LB/MMBTU	EACH CTG; TEST PROTOCOL	0			0		
MN-0066	NORTHERN STATES POWER CO. DRA XCEL ENERGY - RIVERSIDE PLANT	5/16/2006	TURBINE, COMBINED CYCLE (2)	NATURAL GAS	1885	mmBtu/hr	TWO COMBUSTION TURBINES, THROUGHPUT FOR EACH	GOOD COMBUSTION PRACTICES	4.6	PPMVD @ 15% O2	3-HR BLOCK	0			0		
NJ-0074	WEST DEPTFORD ENERGY	5/6/2009	TURBINE, COMBINED CYCLE	NATURAL GAS	17298	MMCF/YR		CO OXIDATION CATALYST AND GOOD COMBUSTION PRACTICES	1.9	PPMVD @ 15% O2	AVERAGE OF 3 TESTS-EACH 60 MIN	0			0		
*NJ-0082	WEST DEPTFORD ENERGY STATION	7/18/2014	Combined Cycle Combustion Turbine without Duct Burner	Natural Gas	20282	MMCF/YR	This is a 427 MW Siemens Combined Cycle Turbine with duct burner Heat Input rate of the turbine = 2276 MMBtu/hr (HHV) Heat Input rate of the Duct Burner= 777 MMBtu/hr(HHV)	Oxidation catalysts and use of Natural gas a clean burning fuel	0.7	PPMVD @ 15% O2	AVERAGE OF THREE ONE HOUR STACK TESTS	2.11	lb/hr	AVERAGE OF THREE ONE HOUR STACK TESTS	0		
NY-0098	ATHENS GENERATING PLANT	1/19/2007	FUEL COMBUSTION (GAS)	NATURAL GAS	3100	MMBTU/H	The fuel use of 20,282 MMCF/YR is for three turbines and three Duct burner. Four GE 7FA combined cycle turbines, dry low NOx burners and selective catalytic reduction. These limits are for each of the 4 turbines individually, while operating with the duct burners on. This permit is a modification to RBLC OH-0252 to remove hourly restrictions on duct burners.	GOOD COMBUSTION CONTROL	4	PPMVD @ 15% O2	3 HOUR BLOCK AVERAGE/STEADY STATE	16.8	lb/hr	3 HOUR BLOCK AVERAGE/STEADY STATE	4	PPMVD @ 15% O2	3 HOUR BLOCK AVERAGE/STEADY STATE
NY-0100	EMPIRE POWER PLANT	6/23/2005	FUEL COMBUSTION (NATURAL GAS)	NATURAL GAS	2099	MMBTU/H		OXIDATION CATALYST	1	PPMVD @ 15% O2	AS PER EPA METHOD 25A	0			AS PER EPA METHOD 25A		
*OH-0352	OREGON CLEAN ENERGY CENTER	6/18/2013	2 Combined Cycle Combustion Turbines-Siemens, without duct burners	Natural Gas	515600	MMSCF/rolling 12-months	Two Mitsubishi 2932 MMBtu/H combined cycle combustion turbines, both with 300 MMBtu/H duct burners, with dry low NOx combustors, SCR, and catalytic oxidizer. Will install either 2 Siemens or 2 Mitsubishi, not both (not determined). Short term limits are different with and without duct burners. This process without duct burners.	oxidation catalyst	3.9	lb/hr		28.6	T/YR	PER ROLLING 12 MONTHS	1	PPM	PPMVD AT 15% O2
*OH-0352	OREGON CLEAN ENERGY CENTER	6/18/2013	2 Combined Cycle Combustion Turbines-Mitsubishi, without duct burners	Natural Gas	47917	MMSCF/rolling 12-MO	Two Mitsubishi 2932 MMBtu/H combined cycle combustion turbines, both with 300 MMBtu/H duct burners, with dry low NOx combustors, SCR, and catalytic oxidizer. Will install either 2 Siemens or 2 Mitsubishi, not both (not determined). Short term limits are different with and without duct burners. This process without duct burners.	oxidation catalyst	7.9	lb/hr		56	T/YR	PER ROLLING 12 MONTHS	2	PPM	PPMVD AT 15% O2



**Table D-A-6**  
**Volatile Organic Compounds (VOC) RBLSC Search - Combustion Turbines Firing Natural Gas (Without Duct Burning)**  
**Invenery, LLC - Allegheny County Energy Center Project**

RBL CID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
*OH-0356	DUKE ENERGY HANGING ROCK ENERGY	12/18/2012	Turbines (4) (model GE 7FA) Duct Burners Off	NATURAL GAS	172	MW	Four GE 7FA combined cycle turbines, dry low NOx burners and selective catalytic reduction. These limits are for each of the 4 turbines individually, while operating with the duct burners off. This permit is a modification to RBLSC OH-0252 to remove hourly restrictions on duct burners.	Using efficient combustion technology	3.2	lb/hr			44.1	T/YR	PER ROLLING 12 MONTHS	0	
OK-0129	CHOUTEAU POWER PLANT	1/23/2009	COMBINED CYCLE COGENERATION &gt;25MW	NATURAL GAS	1882	MMBTU/H	SIEMENS V84.3A	GOOD COMBUSTION	0.3	PPMVD @ 15% O2	3-HR AVG @ 15% O2		5.27	lb/hr	3-HR AVG @ 15% O2	0	
*PA-0291	HICKORY RUN ENERGY STATION	4/23/2013	COMBINED CYCLE UNITS #1 and #2	Natural Gas	3.4	MMCF/HR	The Permittee shall select and install any of the turbine options listed below (or newer versions of these turbines if the Department determines that such newer versions achieve equivalent or better emissions rates and exhaust parameters) 1. General Electric 7FA (GE 7FA) 2. Siemens SGT6-5000F (Siemens F) 3. Mitsubishi M501G (Mitsubishi G) 4. Siemens SGT6-8000H (Siemens H) The emissions listed are for the Siemens SGT6-8000H unit.	Oxidation Catalyst	1.5	PPMVD @ 15% O2	WITH OR WITHOUT DUCT BURNER	TPY 12-MONTH ROLLING TOTAL	93.44		INCLUDING STARTUP AND SHUTDOWN	0	
*PA-0296	BERKS HOLLOW ENERGY ASSOC LLC/ONTEL AUNEE CITY PUBLIC SERVICE JK SPRUCE ELECTRIC GENERATING UNIT 2	12/17/2013	Turbine, Combined Cycle, #1 and #2	Natural Gas	3046	MMBTU/hr	Equipped with SCR and Oxidation Catalyst		93.85	T/YR	12-MONTH ROLLING TOTAL		0			0	
TX-0516	PATILLO BRANCH POWER PLANT	12/28/2005	GENERATOR UNIT NO 2				EACH TURBINE/HRSG WILL BE DESIGNED TO OUTPUT 350 MW. TURBINES BEING CONSIDERED FOR THE PROJECT ARE GE 7FA, GE 7FB, AND SIEMENS SGT6-5000F.		29	lb/hr			88	T/YR		0	
TX-0546		6/17/2009	ELECTRICITY GENERATION	NATURAL GAS	350	MW	The plant will be designed to generate 1,350 nominal megawatts of power. There are two configuration scenarios: either four Siemens SGT6-5000F CTGs in combined-cycle mode (Scenario A) or four GE Frame 7FA CTGs in combined cycle mode (Scenario B). Scenario B also includes one or two auxiliary boilers.	OXIDATION CATALYST	2	PPMVD @ 15% O2	@ 15% O2, 3-HR ROLLING AVG		0			0	
TX-0590	KING POWER STATION	8/5/2010	Turbine	natural gas	1350	MW	(2) GE7FA at 195 MW each. (1) steam turbine at 200 MW. Each turbine is equipped with an unfired heat recovery steam generator (HRSG), which provides steam for the steam turbine.	DLN burners in combination with an oxidation catalyst	1.8	PPMVD @ 15% O2	THREE-HOUR ROLLING AVERAGE		0			0	
TX-0600	THOMAS C. FERGUSON POWER PLANT	9/1/2011	Natural gas-fired turbines	natural gas	390	MW		Natural gas, good combustion practices and oxidation catalyst	2	PPMVD @ 15% O2	3-HR AT 15% OXYGEN		0			0	
TX-0620	ES JOSLIN POWER PLANT	9/12/2012	Combined cycle gas turbine	natural gas	195	MW	The three combustion turbine generators (CTG) will be the General Electric 7FA, each with a maximum base-load electric power output of approximately 195 megawatts (MW). The steam turbine is rated at approximately 235 MW. This project also includes the installation of two emergency generators, one fire water pump, and auxiliary equipment. No duct burners.	good combustion and natural gas as fuel	2	PPMVD @ 15% O2	@15% O2		0			0	
*TX-0660	FGE TEXAS POWER I AND FGE TEXAS POWER II	3/24/2014	Alstom Turbine	Natural Gas	230.7	MW	Four (4) Alstom GT24 CTGs, each with a HRSG and DBs, max design capacity 409 MMBtu/hr	Oxidation catalyst, good combustion practices	2	PPMVD @ 15% O2	CORRECTED TO 15% O2, ROLLING 3 HR AVE		0			0	
*TX-0678	FREEPORT LNG PRETREATMENT FACILITY	7/16/2014	Combustion Turbine	natural gas	87	MW	The exhaust heat from the turbine will be used to heat a heating medium which is used to regenerate rich amine from the acid gas removal system.	oxidation catalyst	2	PPMVD @ 15% O2	1 HOUR BASED ON STACK TEST		0			0	
*TX-0709	SAND HILL ENERGY CENTER	9/13/2013	Natural gas-fired combined cycle turbines	Natural Gas	173.9	MW			2	PPMVD @ 15% O2	1HR. AVG.		0			0	
*TX-0730	COLORADO BEND ENERGY CENTER	4/1/2015	Combined-cycle gas turbine electric generating facility	natural gas	1100	MW	combined cycle power plant that uses two combustion turbines and one steam turbine, model GE 7HA.02	SCR and oxidation catalyst	4	PPMVD @ 15% O2	3-HR AVERAGE		0			0	
VA-0315	WARREN COUNTY POWER PLANT - DOMINION	12/17/2010	COMBINED CYCLE TURBINE &amp; DUCT BURNER, 3	Natural Gas	2996	MMBTU/H	Emissions are for one of three units (Mitsubishi natural gas-fired combustion turbine (CT) generator, Model M501 GAC).	Oxidation catalyst and good combustion practices.	2.6	lb/hr	3 HR AVG. (WITHOUT DUCT BURNER FIRING)		6.1	lb/hr	3 HR. AVG. (WITH DUCT BURNER FIRING)	0	
*VA-0321	BRUNSWICK COUNTY POWER STATION	3/12/2013	COMBUSTION TURBINE GENERATORS (3)	Natural Gas	3442	MMBTU/H	Three (3) Mitsubishi M501 GAC combustion turbine generators with HRSG duct burners (natural gas-fired).	Oxidation catalyst; good combustion practices.	0.7	PPMVD @ 15% O2	3 HR AVG/WITHOUT DUCT BURNING		0			0	
*WY-0070	CHEYENNE PRAIRIE GENERATING STATION	8/28/2012	Combined Cycle Turbine (EP01)	Natural Gas	40	MW		Oxidation Catalyst	3	PPMVD @ 15% O2	1-HOUR		3	lb/hr	3-HOUR AVERAGE	14.7	T/YR
*WY-0070	CHEYENNE PRAIRIE GENERATING STATION	8/28/2012	Combined Cycle Turbine (EP02)	Natural Gas	40	MW		Oxidation Catalyst	3	PPMVD @ 15% O2	3-HOUR AVERAGE		3	lb/hr	3-HOUR AVERAGE	14.7	T/YR
	Astoria Energy LLC		Combustion Turbine	Natural Gas	1000	MW		Low NOx Burners	0.003	lb/MMBtu	1-hr average; Duct Burners Off		5.43	lb/hr	1-hr average; Duct Burners Off		
	Footprint Power Salem Harbor Development LP		Combustion Turbine	Natural Gas	346	MW		Low NOx Burners	3	lb/hr	1-hr average; Duct Burners Off		0.0013	lb/MMBtu	1-hr average; Duct Burners Off		
	Footprint Power Salem Harbor Development LP		Combustion Turbine	Natural Gas	346	MW		Low NOx Burners	1	PPMVD @ 15% O2	1-hr average; Duct Burners Off		0.009	lb/MW-hr	1-hr average; Duct Burners Off		
	Cricknet Valley Energy Center		Combustion Turbine	Natural Gas	1000	MW		Oxidation Catalyst	1	PPMVD @ 15% O2	1-hr average; Duct Burners Off						
	Hawkeye Generating, LLC		Combustion Turbine	Natural Gas					0.0016	lb/MMBtu	1-hr average; Duct Burners Off						
	Huntington Beach Energy Project		Combustion Turbine	Natural Gas	939	MW				1	PPMVD @ 15% O2	1-hr average; Duct Burners Off					
	Hess Newark Energy Center		Combustion Turbine	Natural Gas						1	PPMVD @ 15% O2	Avg of 3 stack test runs; Duct Burners Off					
	Kalama Energy Center		Combustion Turbine	Natural Gas	2247	MMBTU/hr		Oxidation Catalyst	1	PPMVD @ 15% O2	1-hr average		3.2	lb/hr	1-hr average		
	Kalama Energy Center		Combustion Turbine	Natural Gas	2247	MMBTU/hr		Oxidation Catalyst	47.8	tpy	12-mo rolling						
	Lawrence Energy Center LLC		Combustion Turbine	Natural Gas	180	MW			0.00231	lb/MMBtu			4.2	lb/hr			
	Lawrence Energy Center LLC		Combustion Turbine	Natural Gas	180	MW			0.00302	lb/MMBtu			4.2	lb/hr			
	GenCom Middletown LLC		Combustion Turbine	Natural Gas	474.9	MMBTU/hr			1.11	lb/hr							
	OREGON CLEAN ENERGY CENTER		2 Combined Cycle Combustion Turbines-Siemens, without duct burners	Natural Gas	515600	MMSCF/rolling 12-months	Two Mitsubishi 2932 MMBtu/H combined cycle combustion turbines, both with 300 MMBtu/H duct burners, with dry low NOx combustors, SCR, and catalytic oxidizer. Will install either 2 Siemens or 2 Mitsubishi, not both (not determined).  Short term limits are different with and without duct burners.  This process without duct burners.	oxidation catalyst	1	PPM	PPMVD AT 15% O2						
	PacificCorp Energy		Block 2 CT	Natural Gas	629	MW			2.8	PPMVD @ 15% O2	3-hour		14.1	lb/hr			
	Sevier Power Company Power Plant		Combustion Turbine	Natural Gas	580	MW			3	PPMVD @ 15% O2	3-hr average						
	CPV Valley Energy Center			Natural Gas	630	MW			0.7	PPMVD @ 15% O2	1-hr average						
	Woodbridge Energy Center (CPV Shore, LLC)			Natural Gas	2,307	MMBTU/hr			1	PPMVD @ 15% O2							

Table D-A-6  
Volatile Organic Compounds (VOC) RBLC Search - Combustion Turbines Firing Natural Gas (Without Duct Burning)  
Invenenergy, LLC - Allegheny County Energy Center Project

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
	PA STATE UNIV/UNIV PARK CAMPUS		COMBINED HEAT AND POWER DUAL-FIRED COMBUSTION TURBINE	Natural Gas	86.29	MMBtu/hr			10.8	PPMVD @ 15% O <sub>2</sub>							
	Hummel Station LLC		Combustion Turbine	Natural Gas	2,254.00	MMBtu/hr			1	O <sub>2</sub>			2	lb/hr			
	Tenaska Partners LLC		Combustion Turbine	Natural Gas	3147	MMBtu/hr			1.4	O <sub>2</sub>							
	UGI Development Co/ Hunlock Creek			Natural Gas	471.2	MMBtu/hr			1.2	O <sub>2</sub>				>32 °F			
	UGI Development Co/ Hunlock Creek			Natural Gas	471.2	MMBtu/hr			4	O <sub>2</sub>				<32 °F			
	Hawkeye Generating, LLC			Natural Gas	615	MW			0.0016	lb/MMBtu			54.16	ppv			
	Huntington Beach Energy Project			Natural Gas	939	MW (net)			1	O <sub>2</sub>				1-hr rolling			
	Hess Newark Energy Center		Combustion Turbine	Natural Gas	2320	MMBtu/hr			1	O <sub>2</sub>			0.001	lb/MMBtu			
	York Energy Center Block 2	6/15/2015			2512.5	MMBtu/hr	firing NG without duct burner		1.5	O <sub>2</sub>				3-hour block average; average of 3 test runs			
	Calpine/Bethlehem Energy Center				122	MW			1.2	O <sub>2</sub>							
	Liberty Electric Power, LLC				1954	MMBtu/hr	Without DB		1.4	O <sub>2</sub>							

[illegible]

**Table D-A-7  
Particulate Matter (PM) RBLSC - Combustion Turbines Firing Natural Gas (With Duct Burning)  
Invenery, LLC - Allegheny County Energy Center Project**

RBL CID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
*MI-0405	MIDLAND COGENERATION VENTURE	4/23/2013	Natural gas fueled combined cycle combustion turbine generators (CTG) with HRSG and duct burner (DB)	Natural gas	2486	MMBTU/H	This process is permitted in a flexible group format, identified in the permit as FG-CTG/DB1-2 and is for two natural gas fired CTGs with each turbine containing a heat recovery steam generator (HRSG) to operate in combined cycle. The two CTGs (with HRSG) are connected to one steam turbine generator. Each CTG is equipped with a dry low NOx (DLN) burner and a selective catalytic reduction (SCR) system. Additionally, the HRSG is operating with a natural gas fired duct burner for supplemental firing.  The throughput is 2,486 MMBTU/H for each CTG/DB. Natural gas fired CTG with DB for HRSG, 4 total.	Good combustion practices	0.004	LB/MMBTU	TEST PROTOCOL	0			0		
*MI-0410	THETFORD GENERATING STATION	7/25/2013	FGCCA or FGCCB-4 nat. gas fired CTG w/ DB for HRSG	natural gas	2587	MMBTU/H heat input, each CTG	Technology A (4 total) is 2587 MMBTU/H design heat input each CTG.  Technology B (4 total) is 2688 MMBTU/H design heat input each CTG.  Permit was issued for either of two F Class turbine technologies with slight variations in emission rates. Applicant will select one technology. Installation is two separate CTG/HRSG trains driving one steam turbine electrical generator, Two 2X1 Blocks. Each CTG will be rated at 211 to 230 MW (gross) output and the station nominal generating capacity will be up to 1,400 MW.	Combustion air filters; efficient combustion control; low sulfur natural gas fuel	0.0033	LB/MMBTU	TEST PROTOCOL; (3 1-H TESTS IF POSSIBLE)	0			0		
*MI-0412	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	12/4/2013	FG-CTG/HRSG: 2 Combined cycle CTGs with HRSGs with duct burners	natural gas	647	MMBTU/H for each CTG/HRSG	This process is identified in the permit as FGCTG/HRSG; it is 2 combined cycle natural gas-fired combustion turbine generators (CTGs) with Heat Recovery Steam Generators (HRSGs) equipped with duct burners for supplemental firing (EUCTG/HRSG1 & EUCTG/HRSG2 in FGCTG/HRSG). The total hours for both units combined for startup and shutdown shall not exceed 635 hours per 12-month rolling time period. Each CTG/HRSG shall not exceed 647 MMBtu/hr on a fuel heat input basis.	Good combustion practices and the use of pipeline quality natural gas.	0.007	LB/MMBTU	TEST PROTOCOL	0			0		
*NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITH DUCT BURNER - SIEMENS	Natural Gas	33691	MMBtu/yr PER YEAR	Natural Gas Usage <= 33,691 MMBt/3-yr per 365 consecutive day period, rolling one day basis (per two Siemens turbines and two associated duct burners) The heat input rate of the Siemens turbine will be 2,356 MMBtu/hr (HHV) with a 62.1 duct burner MMBtu/hr (HHV).	Use of natural gas a clean burning fuel	10.6	lb/hr	AVERAGE OF THREE ONE HOUR TESTS	0			0		
*NJ-0082	WEST DEPTFORD ENERGY STATION	7/18/2014	Combined Cycle Combustion Turbine with Duct Burner	Natural Gas	20282	MMCF/YR	This is a 427 MW Siemens Combined Cycle Turbine with duct burner Heat input rate of the turbine = 2276 MMBtu/hr (HHV) Heat input rate of the Duct burner = 777 MMBtu/hr (HHV)	Use of Natural gas a clean burning fuel	15.1	lb/hr	AVERAGE OF THREE STACK TEST RUNS	0.0048	LB/MMBTU	AVERAGE OF THREE STACK TEST RUNS	0		
*PA-0286	MOXIE ENERGY LLC/PATRIOT GENERATION PLT	1/31/2013	Combined Cycle Power Blocks 472 MW - (2)	Natural Gas	0		Two natural-gas-fired combined cycle powerblocks where each powerblock consists of a combustion turbine and heat recovery steam generator with duct burner.		0.0057	LB/MMBTU		54	T/YR	EACH UNIT	0		
*PA-0288	SUNBURY GENERATION LP/SUNBURY SES	4/1/2013	Combined Cycle Combustion Turbine AND DUCT BURNER (3)	Natural Gas	2538000	MMBTU/H	Three powerblocks consisting of three (3) natural gas fired F class combustion turbines coupled with three (3) heat recovery steam generators (HSRGs) equipped with natural gas fired duct burners. The Permittee shall select and install any of the turbine options listed below (or newer versions of these turbines if the Department determines that such newer versions achieve equivalent or better emissions rates and exhaust parameters) 1. General Electric 7FA (GE 7FA) 2. Siemens SGT6-5000F (Siemens F) 3. Mitsubishi M501G (Mitsubishi G) 4. Siemens SGT6-8000H (Siemens H) The emissions listed are for the Siemens SGT6-8000H unit.		0.0088	LB/MMBTU		0			0		
*PA-0291	HICKORY RUN ENERGY STATION	4/23/2013	COMBINED CYCLE UNITS #1 and #2	Natural Gas	3.4	MMCF/HR			lb/hr W/ DUCT BURNER	18.5		11.0 lb/hr	11	WITHOUT	62.89	T/YR 12-MONTH ROLLIN	INCLUDING STARTUP AND SHUTDOWN
*PA-0296	BERKS HOLLOW ENERGY ASSOC LLC/ONTELAUNEE	12/17/2013	Turbine, Combined Cycle, #1 and #2	Natural Gas	3046	MMBTu/hr	Equipped with SCR and Oxidation Catalyst		48.56	TPY	12-MONTH ROLLING TOTAL	21.55	lb/hr		0		
*PA-0298	FUTURE POWER PA-GOOD SPRINGS NGCC FACILITY	3/4/2014	Turbine, COMBINED CYCLE UNIT (Siemens 5000)	Natural Gas	2267	MMBTu/hr			10.4	lb/hr	WITH DUCT BURNER	38.95	T/YR	BASED ON A 12-MONTH ROLLING TOTAL	0		
*TX-0730	COLORADO BEND ENERGY CENTER	4/1/2015	Combined-cycle gas turbine electric generating facility	natural gas	1100	MW	Four GE 7FA combined cycle turbines, dry low NOx burners and selective catalytic reduction. These limits are for each of the 4 turbines individually, while operating with the duct burners on. This permit is a modification to RBLSC 04-0252 to remove hourly restrictions on duct burners.	efficient combustion, natural gas fuel	43	lb/hr		0			0		
*WY-0070	CHEYENNE PRAIRIE GENERATING STATION	8/28/2012	Combined Cycle Turbine (EP01)	Natural Gas	40	MW		good combustion practices	4	lb/hr	3-HOUR AVERAGE	17.5	TONS	CALENDAR YEAR	0		
AK-0071	INTERNATIONAL STATION POWER PLANT	12/20/2010	GE LM6000PF-25 Turbines (4)	Natural Gas	59900	hp ISO	Turbine-duct burner pairs exhaust through common stack	Good Combustion Practices	0.0066	LB/MMBTU	3-HOUR AVERAGE	0			0		
AK-0073	INTERNATIONAL STATION POWER PLANT	12/20/2010	Fuel Combustion	Natural Gas	59900	HP	EU IDs 5-8 Combined Cycle Natural Gas-fired Combustion Turbines rated at 59,900 hp (44.7 MW)	Combustion Turbines EU IDs 5-8 use good combustion practices involve increasing the residence time and excess oxygen to ensure complete combustion which in turn minimize particulates without an add-on control technology.	0.0066	LB/MMBTU	3-HOUR	0			0		
CA-1144	BLYTE ENERGY PROJECT II	4/25/2007	2 COMBUSTION TURBINES	NATURAL GAS	170	MW	EACH TURBINE WILL PRODUCE 170 MW		6	lb/hr		61	T/YR		0		
CA-1191	VICTORVILLE 2 HYBRID POWER PROJECT	3/11/2010	COMBUSTION TURBINE #2 (NORMAL OPERATION, WITH DUCT BURNING)	NATURAL GAS	154	MW	154 MW Combined Cycle Combustion Turbine Generator	PUC QUALITY NATURAL GAS	18	lb/hr	12-MONTH ROLLING AVG (W/ DUCT BURNING)	0			0		
CA-1192	AVENAL ENERGY PROJECT	6/21/2011	COMBUSTION TURBINE #1 (NORMAL OPERATION, WITH DUCT BURNING)	NATURAL GAS	180	MW		USE PUC QUALITY NATURAL GAS	11.78	lb/hr	12-MONTH ROLLING AVG	0			0		
CA-1198	MORRO BAY POWER PLANT	9/25/2008	COMBUSTION TURBINE GENERATOR	NATURAL GAS	180	MW		USE PIPELINE QUALITY NATURAL GAS. OPERATE DUCT BURNERS NO MORE THAN 4000 HRS PER YEAR (12-MONTH ROLLING AVG BASIS)	11	lb/hr	6-HR ROLLING AVG (NO DUCT BURNING)	13.3	lb/hr	6-HR ROLLING AVG (W/ DUCT BURNING)	0		
CA-1211	COLUSA GENERATING STATION	3/1/2011	COMBUSTION TURBINES (NORMAL OPERATION)	NATURAL GAS	172	MW	TWO (2) NATURAL GAS FIRED TURBINES AT 172 MW EACH. BOTH TURBINES EQUIPPED WITH A 688 MMBTU/HR DUCT BURNER AND HRSG.	USE NATURAL GAS	13.5	lb/hr	STACK TEST	0			0		

**Table D-A-7  
Particulate Matter (PM) RBLC Search - Combustion Turbines Firing Natural Gas (With Duct Burning)  
Invenergy, LLC - Allegheny County Energy Center Project**

RBL CID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
CA-1212	PALMDALE HYBRID POWER PROJECT	10/18/2011	COMBUSTION TURBINES (NORMAL OPERATION)	NATURAL GAS	154	MW	TWO NATURAL GAS-FIRED COMBUSTION TURBINE-GENERATORS (CTGS) RATED AT 154 MEGAWATT (MW, GROSS) EACH, TWO HEAT RECOVERY STEAM GENERATORS (HRSG), ONE STEAM TURBINE GENERATOR (STG) RATED AT 267 MW, AND 251 ACRES OF PARABOLIC SOLAR-THERMAL COLLECTORS WITH ASSOCIATED HEAT-TRANSFER EQUIPMENT	USE PUC QUALITY NATURAL GAS	0.0048	LB/MMBTU	9-HR AVG (NO DUCT BURNING)	0.0049	LB/MMBTU	9-HR AVG (W/ DUCT BURNING)	0		
CO-0056	ROCKY MOUNTAIN ENERGY CENTER, LLC	5/2/2006	NATURAL-GAS FIRED, COMBINED-CYCLE TURBINE	NATURAL GAS	300	MW	ONE NEW COMBINED-CYCLE TURBINE IS BEING ADDED TO AN EXISTING FACILITY	NATURAL GAS QUALITY FUEL ONLY AND GOOD COMBUSTION CONTROL PRACTICES.	0.0074	LB/MMBTU		10 % OPACITY			0		
CT-0151	KLEEN ENERGY SYSTEMS, LLC	2/25/2008	SIEMENS SGT6-5000F COMBUSTION TURBINE #1 AND #2 (NATURAL GAS FIRED) WITH 445 MMBTU/HR NATURAL GAS DUCT BURNER	NATURAL GAS	2.1	MMCF/H	THROUGHPUT IS FOR TURBINE ONLY WHEN FIRING NATURAL GAS  TURBINE: 2136 MMBTU/HR (2.095 MMCF/HR) DUCT BURNER: 445 MMBTU/HR (0.436 MMCF/HR)		11	lb/hr	W/O DUCT BURNER	15.2	lb/hr	W/ DUCT BURNER	0		
DE-0024	GARRISON ENERGY CENTER	1/30/2013	Unit 1	Natural Gas	2260	million BTUs		Fuel Usage Restriction to natural gas and low sulfur distillate oil	120.4	TONS/Y	12 MONTH ROLLING AVERAGE	0			0		
FL-0263	FPL TURKEY POINT POWER PLANT	2/8/2005	170 MW COMBUSTION TURBINE, 4 UNITS	NATURAL GAS	170	MW	GENERATING CAPACITY: EACH OF THE FOUR GAS TURBINES HAS A NOMINAL GENERATING CAPACITY OF 170 MW FOR GAS FIRING (180 MW FOR OIL FIRING). EACH OF THE FOUR HEAT RECOVERY STEAM GENERATORS (HRSGS) PROVIDES STEAM TO THE SINGLE STEAM TURBINE ELECTRICAL GENERATOR, WHICH HAS A NOMINAL CAPACITY OF 470 MW. THE TOTAL NOMINAL GENERATING CAPACITY OF THE 4-ON-1 COMBINED CYCLE UNIT IS 1150 MW.		0		SEE NOTE	0			0		
FL-0265	HINES POWER BLOCK 4	6/8/2005	COMBINED CYCLE TURBINE	NATURAL GAS	530	MW	FUELS: EACH GAS TURBINE WILL FIRE NATURAL GAS AS THE PRIMARY FUEL AND ULTRA LOW SULFUR (0.0015% SULFUR) DISTILLATE OIL AS A RESTRICTED ALTERNATE FUEL. EMISSIONS OF ALL POLLUTANTS INCREASE WITH THE FIRING OF OIL. THE APPLICANT REQUESTS 500 HOURS PER YEAR PER GAS TURBINE (OR EQUIVALENT) FOR OIL FIRING.	PM/PM10 WILL BE MINIMIZED BY THE EFFICIENT COMBUSTION OF NATURAL GAS AND DISTILLATE OIL AT HIGH TEMPERATURES.	10	% OPACITY	6 MM BLOCK AVERAGE	0			10 % OPACITY		
ID-0018	LANGLEY GULCH POWER PLANT	6/25/2010	COMBUSTION TURBINE, COMBINED CYCLE W/ DUCT BURNER	NATURAL GAS (ONLY)	2375.28	MMBTU/H	MODES OF OPERATION: STANDARD NORMAL OPERATION, WITH DUCT BURNER, POWER AUGMENTATION AND PEAKING.	CLEAN FUELS	0		SEE NOTE	0			0		
LA-0136	PLAQUEMINE COGENERATION FACILITY	7/23/2008	(4) GAS TURBINES/DUCT BURNERS	NATURAL GAS	2876	MMBTU/H	SIEMENS SGT6-5000F COMBUSTION TURBINE (NGCT, CCGT) FOR ELECTRICAL GENERATION. NOMINAL 269 MW AND 2.1466 MMSCF/HR	GOOD COMBUSTION PRACTICES (GCP)	0		SEE NOTE	0			0		
LA-0192	CRESCENT CITY POWER	6/6/2005	GAS TURBINES - 187 MW (2)		2006	MMBTU/H	VISUAL INSPECTION FOR OPACITY ON A WEEKLY BASIS, STACK TESTS FOR PM, NOX, SO2, OPACITY, CO EMISSION POINTS GT-500, -600, -700, -800.	USE OF CLEAN BURNING FUELS	33.5	lb/hr	HOURLY MAXIMUM	139	T/YR	ANNUAL MAXIMUM	0		
LA-0224	ARSENAL HILL POWER PLANT	3/20/2008	TWO COMBINED CYCLE GAS TURBINES	NATURAL GAS	2110	MMBTU/H	CTG-1 TURBINE/DUCT BURNER (EQ7012) CTG-2 TURBINE/DUCT BURNER(EQ7013)	USE OF CLEAN BURNING FUEL AND GOOD COMBUSTION PRACTICES	29.4	lb/hr	HOURLY MAXIMUM	128.8	T/YR	ANNUAL MAXIMUM	0		NOT AVAILABLE
LA-0257	SABINE PASS LNG TERMINAL	12/6/2011	Combined Cycle Refrigeration Compressor Turbines (8)	natural gas	286	MMBTU/H	GE LM2500-G4	GOOD COMBUSTION DESIGN/ PROPER OPERATING PRACTICES/ PIPELINE QUALITY NATURAL GAS AS FUEL	24.23	lb/hr	MAX	0			0		
MI-0366	BERRIEN ENERGY, LLC	4/13/2005	3 COMBUSTION TURBINES AND DUCT BURNERS	NATURAL GAS	1584	MMBTU/H	EACH TURBINE IS EQUIPPED WITH A HEAT RECOVERY STEAM GENERATOR (HRSG). EACH HRSG IS EQUIPPED WITH A NATURAL GAS FIRED DUCT BURNER (650 MMBTU/H). TOTAL NOMINAL PLAN GENERATING CAPACITY WITHOUT DUCT FIRING IS 800 MW. A MAX OUTPUT OF 1100 MW THROUGH SUPPLEMENTAL FIRING OF HRSGS.	Good combustion practices and fueled by natural gas	2.08	lb/hr	HOURLY MAXIMUM	0			0		
MN-0071	FAIRBAULT ENERGY PARK	6/5/2007	COMBINED CYCLE COMBUSTION TURBINE W/DUCT BURNER	NATURAL GAS	1758	MMBTU/H	STATE OF THE ART COMBUSTION TECHNIQUES AND USE OF NATURAL GAS ARE BACT FOR PM10.		19	lb/hr		293.3	T/YR		0		
NC-0101	FORSYTH ENERGY PLANT	9/29/2005	TURBINE, COMBINED CYCLE, NATURAL GAS, (3)	NATURAL GAS	1844.3	MMBTU/H	COMBUSTION TURBINE PERMITTED TO USE NG & NO. 2 OIL. DUCT BURNER PERMITTED TO USE NG & NO. 2 OIL. DUCT BURNER ALSO AUTHORIZED TO COMBUST LIQUID BIOFUEL	CTG NG OR CTG & DB NG	0.01	LB/MMBTU	CTG NG OR CTG & DB NG	0.015	LB/MMBTU	CTG NG & DB OIL	0.03	LB/MMBTU	CTG OIL & DB NOT OPERATE OR DB NG OR OIL
NC-0101	FORSYTH ENERGY PLANT	9/29/2005	TURBINE, COMBINED CYCLE, NAT GAS, 3	NATURAL GAS	1844.3	MMBTU/H	Each of these units have a natural gas-fired heat recovery steam generator and a natural gas-fired duct burner. Each CT combusts natural gas as the primary fuel and very low-sulfur No. 2 fuel oil as a backup fuel. The use of fuel oil is limited to 1,200 hours per year and only during the months of November through March, and is listed as a separate process. These units are listed as a combined source (all three units) for each type of fuel.	USE OF ONLY CLEAN-BURNING LOW-SULFUR FUELS AND GOOD COMBUSTION PRACTICES.	0.019	LB/MMBTU	based on 3-hour average	0			0		
NC-0101	FORSYTH ENERGY PLANT	9/29/2005	TURBINE & DUCT BURNER, COMBINED CYCLE, NAT GAS, 3	NATURAL GAS	1844.3	MMBTU/H	Each of these units have a natural gas-fired HRSG & a natural gas fired duct burner. Limits for this process are for turbines and duct burners.	CLEAN BURNING LOW-SULFUR FUELS AND GOOD COMBUSTION PRACTICES	0.021	LB/MMBTU	3-hr avg	0			0		
NI-0074	WEST DEPTFORD ENERGY	5/6/2009	TURBINE, COMBINED CYCLE	NATURAL GAS	17298	MMFT3/YR		CLEAN FUELS - NATURAL GAS AND ULTRA LOW SULFUR (15PPM SULFUR) DISTILLATE OIL	18.66	lb/hr		0			0		
NY-0095	CATHINES BELLPORT ENERGY CENTER	5/10/2006	COMBUSTION TURBINE	NATURAL GAS	2221	MMBTU/H	COMBINED CYCLE WITH DUCT FIRING UP TO 494 MMBTU/H	LOW SULFUR FUEL	0.0055	LB/MMBTU	NO DUCT BURNING	0.0066	LB/MMBTU	W/ DUCT BURNING	0		
OK-0115	LAWTON ENERGY COGEN FACILITY	12/12/2006	COMBUSTION TURBINE AND DUCT BURNER					GOOD COMBUSTION PRACTICES	0.0067	LB/MMBTU		0			0		
OK-0117	PSO SOUTHWESTERN POWER PLT	2/9/2007	GAS-FIRED TURBINES					USE OF LOW ASH FUEL (NATURAL GAS) AND EFFICIENT COMBUSTION	0.0093	LB/MMBTU		0			0		
OR-0041	WANAPA ENERGY CENTER	8/8/2005	TURBINE & HEAT RECOVERY STEAM GENERATOR	NATURAL GAS	2384.1	MMBTU/H	GE 7241FA TURBINE AND DUCT BURNER. COMBUSTION TURBINE - 1,778.5 MMBTU/HR DUCT BURNER - 605.6 MMBTU/HR		0		SEE POLLUTANT NOTE	0			0		

**Table D-A-7  
Particulate Matter (PM) RBLC Search - Combustion Turbines Firing Natural Gas (With Duct Burning)  
Invenergy, LLC - Allegheny County Energy Center Project**

RBL CID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
OR-0048	CARTY PLANT	12/29/2010	COMBINED CYCLE NATURAL GAS-FIRED ELECTRIC GENERATING UNIT	NATURAL GAS	2866	MMBTU/H		CLEAN FUEL	2.5	LB/MMCF		0			0		
PA-0278	MOXIE LIBERTY LLC/ASYLUM POWER PL T	10/10/2012	Combined-cycle Turbines (2) - Natural gas fired	Natural Gas	3277	MMBTU/H	Two combine cycle Turbines, each with a combustion turbine and heat recovery steam generator with duct burner. Each combined-cycle process will be rated at 468 MW or less. The heat input rating of each combustion gas turbine is 2890 MMBtu/hr (HHV) or less, and the heat input rating of each supplemental duct burner is equal to 387 MMBtu/hr (HHV) or less.	Using fuel with little or no ash and sulfur content.	0.004	LB/MMBTU	FOR 468 MW POWERBLOCK	0.0057	LB/MMBTU	FOR 454 MW POWERBLOCK	0		
TX-0497	INEOS CHOCOLATE BAYOU FACILITY	8/29/2006	COGENERATION TRAIN 2 AND 3 (TURBINE AND DUCT BURNER EMISSIONS)	NATURAL GAS	35	MW	GREEN POWER ONE WILL CONSIST OF TWO NOMINALLY RATED 35 MW GAS FIRED TURBINES AND TWO HEAT RECOVERY STEAM GENERATORS, EQUIPPED WITH 312 MMBTU/HR DUCT BURNERS. THE COMBUSTION TURBINES WILL ONLY BURN PIPELINE QUALITY SWEET NATURAL GAS. THE DUCT BURNERS WILL BURN NATURAL GAS, COMPLEX GAS OR MIXTURES OF NATURAL GAS AND COMPLEX GAS. STEAM PRODUCED IN THE HRSGS WILL BE USED IN THE CHOCOLATE BAYOU WORKS CHEMICAL COMPLEX. THE CHEMICAL COMPLEX WILL CONSUME APPROXIMATELY HALF OF THE ELECTRICAL OUTPUT PRODUCED BY THE TWO NEW TURBINES. EXCESS POWER PRODUCED BY THE COMBUSTION TURBINES WILL BE SOLD TO THE GRID.	THE USE OF PROPER COMBUSTION CONTROL AND FIRING ONLY GASEOUS FUELS CONTAINING NO ASH IS BACT FOR PARTICULATE MATTER FROM THE GAS FIRED TURBINES AND DUCT BURNERS.	10.03	lb/hr		71.32	T/YR	0			
TX-0502	NACOGDOCHES POWER STERNE GENERATING FACILITY	6/5/2006	WESTINGHOUSE/ SIEMENS MODEL SW501F GAS TURBINE W/416.5 MMBTU DUCT BURNERS	NATURAL GAS	190	MW		STEAG POWER LLC REPRESENTS THE FIRING OF PIPELINE NATURAL GAS IN THE COMBUSTION TURBINES AND DUCT FIRED HRSGS AS BACT FOR PM10.	26.9	lb/hr		275.4	T/YR	0			
TX-0516	CITY PUBLIC SERVICE JK SPRUCE ELECTRIC GENERATING UNIT 2	12/28/2005	SPRUCE POWER GENERATOR UNIT NO 2						264	lb/hr		525	T/YR	0			
TX-0590	KING POWER STATION	8/5/2010	Turbine	natural gas	1350	MW	The plant will be designed to generate 1,350 nominal megawatts of power. There are two configuration scenarios: either four Siemens SGT6-5000F CTGs in combined-cycle mode (Scenario A) or four GE Frame 7FA CTGs in combined cycle mode (Scenario B). Scenario B also includes one or two auxiliary boilers.	use low ash fuel (natural gas or low sulfur diesel as a backup) and good combustion practices	11.1	lb/hr		19.8	lb/hr	0			
TX-0618	CHANNEL ENERGY CENTER LLC	10/15/2012	Combined Cycle Turbine	natural gas	180	MW	The turbine is a Siemens 501F rated at a nominal 180 MW and the duct burner will have a maximum design heat input of 475 MMBtu/hr.	Good combustion and the use of gaseous fuel	27	lb/hr		0		0			
TX-0619	DEER PARK ENERGY CENTER	9/26/2012	Combined Cycle Turbine	natural gas	180	MW	natural gas-fired combined cycle turbine generator with a heat recovery steam generator equipped with a duct burner. The turbine is a Siemens 501F rated at a nominal 180 megawatts and the DB will have a maximum design rate capability of 725 million British thermal units per hour	good combustion and use of natural gas	27	lb/hr		0		0			
VA-0319	GATEWAY COGENERATION 1, LLC - SMART WATER PROJECT	8/27/2012	COMBUSTION TURBINES (2)	Natural Gas	593	MMBTU/H	Burns primarily natural gas but has the capacity to burn up to 500 hours of ultra low sulfur diesel fuel (ULSD) as backup.	Clean-burning fuels and good combustion practices.	5	lb/hr	3 H AVG	0		0			
WA-0328	BP CHERRY POINT COGENERATION PROJECT	1/11/2005	GE 7FA COMBUSTION TURBINE &amp; HEAT RECOVERY STEAM GENERATOR	NATURAL GAS	174	MW	THREE IDENTICAL CT & HRSG UNITS. EACH CT WILL HAVE AN ANNUAL AVERAGE CAPACITY RATING OF 1614 MMBTU/HR. EACH HRSG DUCT BURNER WILL HAVE A MAXIMUM FIRING RATE OF 105 MMBTU/HR.	LIMIT FUEL TYPE TO NATURAL GAS	0			0		0		*SEE NOTES	
	Astoria Energy LLC		Combustion Turbine	Natural Gas	1000	MW		Clean Fuel	0.0098	lb/MMBtu	1-hr average; Duct Burners On	18	lb/hr	1-hr average; Duct Burners On			
	Tenaska Partners LLC		Combustion Turbine	Natural Gas	3147	MMBTU/hr			11.8	lb/hr		0.0039	lb/MMBtu				
	Hawkeye Generating, LLC		Natural Gas		615	MW			0.0064	lb/MMBtu		121.77	tpv				
	Hawkeye Generating, LLC		Natural Gas		615	MW			0.0063	lb/MMBtu		121.77	tpv				
	Liberty Electric Power, LLC				1954	MMBTU/hr	With DB		28.1	lb/hr							
	Catoctin Power LLC		Combustion Turbine	Natural Gas	170	MW		Pipeline quality low sulfur NG; DLN combustion design	21.1	lb/hr	3-hr average						
	Gibson County Generation, LLC		Combustion Turbine	Natural Gas	417	MW			0.0048	lb/MMBtu	24-hr average						
	York Energy Center Block 1		Combustion Turbine	Natural Gas	1574	MMBTU/hr			0.0141	lb/MMBtu	hourly basis						
	Footprint Power Salem Harbor Development LP		Combustion Turbine	Natural Gas	346	MW		Clean Fuel	13	lb/hr	1-hr average; Duct Burners On	0.0062	lb/MMBtu	1-hr average; Duct Burners On			
	Footprint Power Salem Harbor Development LP		Combustion Turbine	Natural Gas	346	MW		Clean Fuel	0.041	lb/MW-hr	1-hr average; Duct Burners On						
	Kalama Energy Center		Combustion Turbine	Natural Gas	2247	MMBTU/hr			17.1	lb/hr	3-hr average	0.0068	lb/MMBtu	3-hr average			
	Kalama Energy Center		Combustion Turbine	Natural Gas	2247	MMBTU/hr			70	tpv	12-mo rolling						
	GenCom Middletown LLC		Combustion Turbine	Natural Gas	474.9	MMBTU/hr			6	lb/hr							
	PacifiCorp Energy		Block 1 CT	Natural Gas					10.8	lb/hr	30-day rolling average						
	PacifiCorp Energy		Block 2 CT	Natural Gas	629	MW			14	lb/hr	30-day rolling average						
	Pioneer Valley Sevier Power Company Power Plant		Combustion Turbine	Natural Gas	387	MW			0.0004	lb/MMBtu	30-day rolling average						
	WARREN COUNTY POWER PLANT - DOMINION		COMBINED CYCLE TURBINE &amp; DUCT BURNER, 3	Natural Gas	2996	MMBTU/H	Emissions are for one of three units (Mitsubishi natural gas-fired combustion turbine (CT) generator, Model M501 GAC).	Oxidation catalyst and good combustion practices.	21.2	lb/hr	(WITH DUCT BURNER FIRING)	0.0061	lb/MMBtu				
	Woodbridge Energy Center (CPV Shore, LLC)			Natural Gas	2807	MMBTU/hr			19.1	lb/hr							
	Woodbridge Energy Center (CPV Shore, LLC)			Natural Gas	2307	MMBTU/hr			12.1	lb/hr							
	Hummel Station LLC		Combustion Turbine	Natural Gas	2254	MMBTU/hr			17.3	lb/hr							
	Hummel Station LLC		Combustion Turbine	Natural Gas	2254	MMBTU/hr			14	lb/hr							
	Gibson County Generation, LLC		Combustion Turbine	Natural Gas	417	MW						0.0088	lb/MMBtu	24-hr average			
	York Energy Center Block 2	6/15/2015			2512.5	MMBTU/hr	firing NG with duct burner		18.4	lb/hr	average of 3 test runs						
	York Energy Center Block 2	6/15/2015			2512.5	MMBTU/hr	firing NG without duct burner		10.7	lb/hr	average of 3 test runs						
	Cricket Valley Energy Center		Combustion Turbine	Natural Gas	1000	MW		Combusting commercially available, pipeline natural gas in the turbines and duct burners	0.005	lb/MMBtu	1-hr average						

Table D-A-7  
**Particulate Matter (PM) RBLC Search - Combustion Turbines Firing Natural Gas (With Duct Burning)**  
**Invenergy, LLC - Allegheny County Energy Center Project**

RBLC ID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
	Cricket Valley Energy Center		Combustion Turbine	Natural Gas	1000	MW			0.006	lb/MMBtu	1-hr average						
	Shell Chemical Appalachia/Petrochemicals Complex	6/18/2015			664	MMBtu/hr	each of the combustion turbines with duct burners		0.0066	lb/MMBtu	combustion turbines with duct burners						

**Table D-A-8  
Particulate Matter (PM) RBLC Search - Combustion Turbines Firing Natural Gas (With Duct Burning)  
Invenergy, LLC - Allegheny County Energy Center Project**

RBLCD	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION	
FL-0356	OKEECHOBEE CLEAN ENERGY CENTER	3/9/2016	Combined-cycle electric generating unit	Natural gas	3096	MMBtu/hr per turbine	3-on-1 combined cycle unit. GE 7HA.02 turbines, approximately 350 MW per turbine. Total unit generating capacity is approximately 1,600 MW. Primarily fueled with natural gas. Permitted to burn the base-load equivalent of 500 lb/hr per turbine on ULSD.	Use of clean fuels		2	GRAIN S/100 SCF GAS	FOR NATURAL GAS	0.0015	% S IN ULSD	FOR ULSD		0	
*FL-0363	DANIA BEACH ENERGY CENTER	12/4/2017	2-on-1 combined cycle unit (GE 7HA) EUCCT (Combined cycle CTG with unfired HRSG)	Natural gas	4000	MMBtu/hr	Two nominal 430 MW combustion turbines, coupled to a steam turbine generator	Clean fuels	0			0				0		
MI-0427	FILER CITY STATION	11/17/2017	FGCTGHRSG (EUCTGHRSG1 &amp; EUCTGHRSG2)	Natural gas	1934.7	MMBTU/H	A 1,934.7 MMBTU/H natural gas fired heavy frame industrial combustion turbine. The turbine operates in combined-cycle with an unfired heat recovery steam generator (HRSG). Two (2) combined-cycle natural gas-fired combustion turbine generators, each with a heat recovery steam generator (CTGHRSG).	Good combustion practices and the use of pipeline quality natural gas, combustion inlet air filter.	0.0025	LB/MMBTU		0				0		
*MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	FGCTGHRSG (EUCTGHRSG1 &amp; EUCTGHRSG2)	Natural gas	0		Plant nominal 1,150 MW electricity production. Turbines are each rated at 3,658 MMBTU/H and HRSG duct burners are each rated at 800 MMBTU/H. The HRSGs are not capable of operating independently from the CTGs.	Good combustion practices, inlet air conditioning, and the use of pipeline quality natural gas.	16	LB/H	HOURLY, EACH UNIT	12.2	LB/H	HOURLY, EACH UNIT W/O DUCT BURNER FIRING		0		
NI-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	Combined Cycle Combustion Turbine firing Natural Gas with Duct Burner	natural gas	4000	lb/yr		USE OF NATURAL GAS A CLEAN BURNING FUEL	10.4	LB/H	AV OF THREE ONE H STACK TESTS EVERY 5 YR	0				0		
NI-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	Combined Cycle Combustion Turbine firing Natural Gas without Duct Burner	Natural Gas	8040	lb/YR		USE OF NATURAL GAS A CLEAN BURNING FUEL	4.4	LB/H	AV OF THREE ONE H STACK TESTS EVERY 5 YR	0				0		
*PA-0310	CPV FAIRVIEW ENERGY CENTER	9/2/2016	Combustion turbine and HRSG without duct burner NG only	Natural gas	0		Emission limits are for each turbine fueled by NG and operating without duct burner being fired and do not include startup/shutdown emissions.	Low sulfur fuels and good combustion practices	0.0068	LB/MMBTU		0				0		
TX-0817	CHOCOLATE BAYOU STEAM GENERATING (CBSG) STATION	2/17/2017	Combined Cycle Cogeneration	NATURAL GAS	50	MW	2 UNITS EACH 50 MW GE LM6000		6.98	LB/H		0				0		
*TX-0834	MONTGOMERY COUNTY POWER STATION	3/30/2018	Combined Cycle Turbine	NATURAL GAS	2635	MMBTU/HR/UNIT	Two Mitsubishi M501GAC turbines (without fast start)	PIPELINE NATURAL GAS, GOOD COMBUSTION	125.7	TON/YR		0				0		
*CO-0073	PUEBLO AIRPORT GENERATING STATION	7/22/2010	Four combined cycle combustion turbines	natural gas	373	mmbtu/hr	Three GE, LMS6000 PF, natural gas-fired, combined cycle CTG, rated at 373 MMBtu per hour each, based on HHV and one (1) HRSG each with no Duct Burners	Use of pipeline quality natural gas and good combustor design	4.3	lb/hr	AVE OVER STACK TEST LENGTH	0				0		
*IL-0112	NELSON ENERGY CENTER	12/28/2010	Electric Generation Facility	Natural Gas	220	MW each	Two combined cycle combustion turbines followed by HRSGs with capability for supplemental fuel firing in HRSG for each combustion turbine using duct burners		0.012	LB/MMBTU	HOURLY AVERAGE	0				0		
*IN-0158	ST. JOSEPH ENRGY CENTER, LLC	12/3/2012	FOUR (4) NATURAL GAS COMBINED CYCLE COMBUSTION TURBINES	NATURAL GAS	2300	MMBTU/H	EACH TURBINE IS EQUIPPED WITH DRY LOW NOX BURNERS, NATURAL GAS FIRED DUCT BURNERS, AND A HEAT RECOVERY STEAM GENERATOR IDENTIFIED AS HRSG#. NOX EMISSIONS CONTROLLED BY SELECTIVE CATALYTIC REDUCTION SYSTEMS (SCR#) ALONG WITH CO AND VOC EMISSIONS CONTROLLED BY OXIDATION CATALYST SYSTEMS (CAT#) IN EACH TURBINE. EACH STACK HAS CONTINUOUS EMISSIONS MONITORS FOR NOX AND CO. COMBINED NOMIAL POWER OUTPUT IS 1,350 MW.	GOOD COMBUSTION PRACTICE AND FUEL SPECIFICATION	18	lb/hr	3 HOURS	0.0078	LB/MMBTU	3 HOURS		0		
*MD-0041	CPV ST. CHARLES	4/23/2014	2 COMBINED-CYCLE COMBUSTION TURBINES	NATURAL GAS	725	MEGAWATT	TWO GENERAL ELECTRIC (GE) F-CLASS ADVANCED COMBINED CYCLE COMBUSTION TURBINES (CTS) WITH A NOMINAL GENERATING CAPACITY OF 725 MW, COUPLED WITH A HEAT RECOVERY STEAM GENERATOR (HRSG) EQUIPPED WITH DUCT BURNERS, DRY LOW-NOX BURNERS, SCR, OXIDATION CATALYST	USE OF PIPELINE-QUALITY NATURAL GAS EXCLUSIVELY AND GOOD COMBUSTION PRACTICE	0.011	LB/MMBTU	AVERAGE OF THREE STACK TEST RUNS	0				0		
*MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014	2 COMBINED CYCLE COMBUSTION TURBINES, WITHOUT DUCT FIRING	NATURAL GAS	270	MW		EXCLUSIVE USE OF PIPELINE QUALITY NATURAL GAS AND EFFICIENT TURBINE DESIGN	15	lb/hr	3-HOUR BLOCK AVERAGE	0				0		
*MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014	2 COMBINED CYCLE COMBUSTION TURBINES, WITHOUT DUCT FIRING	NATURAL GAS	270	MW		EXCLUSIVE USE OF PIPELINE QUALITY NATURAL GAS AND EFFICIENT TURBINE DESIGN	25.1	lb/hr	AVERAGE OF 3 STACK TEST RUNS	0				0		
*MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014	2 COMBINED CYCLE COMBUSTION TURBINES, WITHOUT DUCT FIRING	NATURAL GAS	270	MW		EXCLUSIVE USE OF PIPELINE QUALITY NATURAL GAS AND EFFICIENT TURBINE DESIGN	25.1	lb/hr	AVERAGE OF 3 STACK TEST RUNS	0				0		
*MI-0402	SUMPTER POWER PLANT	11/17/2011	Combined cycle combustion turbine w/ HRSG	Natural gas	130	MW electrical output	This is a combined-cycle combustion turbine with a non-fired heat recovery steam generator (HRSG).	Natural gas-fired combustion turbine conversion to combined-cycle.	0.0066	LB/MMBTU	TEST	7.4	lb/hr	TEST		0		
*MI-0402	SUMPTER POWER PLANT	11/17/2011	Combined cycle combustion turbine w/ HRSG	Natural gas	130	MW electrical output	This is a combined-cycle combustion turbine with a non-fired heat recovery steam generator (HRSG).	Natural gas-fired combustion turbine conversion to combined-cycle. Throughput is 2,237 MMBTU/H for each CTG	0.0066	LB/MMBTU	TEST	7.4	lb/hr	TEST		0		
*MI-0405	MIDLAND COGENERATION VENTURE	4/23/2013	Natural gas fueled combined cycle combustion turbine generators (CTG) with HRSG	Natural gas	2237	MMBTU/H	Equipment is permitted as following flexible group (FG): FG-CTG1-2: Two natural gas fired CTGs with each turbine containing a heat recovery steam generator (HRSG) to operate in combined cycle. The two CTGs (with HRSG) are connected to one steam turbine generator. Each CTG is equipped with a dry low NOx (DLN) burner and a selective catalytic reduction (SCR) system.	Good combustion practices	0.006	LB/MMBTU	EACH CTG; TEST PROTOCOL	0.012	LB/MMBTU	EACH CTG; TEST PROTOCOL		0		
*MI-0405	MIDLAND COGENERATION VENTURE	4/23/2013	Natural gas fueled combined cycle combustion turbine generators (CTG) with HRSG	Natural gas	2237	MMBTU/H	Equipment is permitted as following flexible group (FG): FG-CTG1-2: Two natural gas fired CTGs with each turbine containing a heat recovery steam generator (HRSG) to operate in combined cycle. The two CTGs (with HRSG) are connected to one steam turbine generator. Each CTG is equipped with a dry low NOx (DLN) burner and a selective catalytic reduction (SCR) system.	Good combustion practices	0.006	LB/MMBTU	EACH CTG; TEST PROTOCOL	0.012	LB/MMBTU	EACH CTG; TEST PROTOCOL		0		



**Table D-A-8  
Particulate Matter (PM) RBLC Search - Combustion Turbines Firing Natural Gas (With Duct Burning)  
Invenergy, LLC - Allegheny County Energy Center Project**

RBLCD	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
*MI-0410	THETFORD GENERATING STATION	7/25/2013	FGCCA or FGCCB-4 nat. gas fired CTG w/ DB for HRSG	natural gas	2587	MMBTU/H heat input, each CTG	Natural gas fired CTG with DB for HRSG; 4 total.  Technology A (4 total) is 2587 MMBTU/H design heat input each CTG.  Technology B (4 total) is 2688 MMBTU/H design heat input each CTG.  Permit was issued for either of two F Class turbine technologies with slight variations in emission rates. Applicant will select one technology. Installation is two separate CTG/HRSG trains driving one steam turbine electrical generator. Two 2X1 Blocks. Each CTG will be rated at 211 to 230 MW (gross) output and the station nominal generating capacity will be up to 1,400 MW.	Combustion air filters; efficient combustion control; low sulfur natural gas fuel.	0.0033	LB/MMBTU		TEST PROTOCOL; (3 1-H TESTS IF POSSIBLE)	0			0	
*MI-0410	THETFORD GENERATING STATION	7/25/2013	FGCCA or FGCCB-4 nat. gas fired CTG w/ DB for HRSG	natural gas	2587	MMBTU/H heat input, each CTG	Natural gas fired CTG with DB for HRSG; 4 total.  Technology A (4 total) is 2587 MMBTU/H design heat input each CTG.  Technology B (4 total) is 2688 MMBTU/H design heat input each CTG.  Permit was issued for either of two F Class turbine technologies with slight variations in emission rates. Applicant will select one technology. Installation is two separate CTG/HRSG trains driving one steam turbine electrical generator. Two 2X1 Blocks. Each CTG will be rated at 211 to 230 MW (gross) output and the station nominal generating capacity will be up to 1,400 MW.	Combustion air filters; efficient combustion control; low sulfur natural gas fuel.	0.0066	LB/MMBTU		TEST PROTOCOL; (3 1-H TESTS IF POSSIBLE)	0			0	
*MI-0410	THETFORD GENERATING STATION	7/25/2013	FGCCA or FGCCB-4 nat. gas fired CTG w/ DB for HRSG	natural gas	2587	MMBTU/H heat input, each CTG	Natural gas fired CTG with DB for HRSG; 4 total.  Technology A (4 total) is 2587 MMBTU/H design heat input each CTG.  Technology B (4 total) is 2688 MMBTU/H design heat input each CTG.  Permit was issued for either of two F Class turbine technologies with slight variations in emission rates. Applicant will select one technology. Installation is two separate CTG/HRSG trains driving one steam turbine electrical generator. Two 2X1 Blocks. Each CTG will be rated at 211 to 230 MW (gross) output and the station nominal generating capacity will be up to 1,400 MW.	Combustion air filters; efficient combustion control; low sulfur natural gas fuel.	0.0066	LB/MMBTU		TEST PROTOCOL; (3 1-H TESTS IF POSSIBLE)	0			0	
*NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2013	Combined Cycle Combustion Turbine - Siemens turbine without Duct Burner	Natural gas	33691	MMcubic ft/yr	Natural Gas Usage <= 33,691 MMH <sup>3</sup> /yr per 365 consecutive day period, rolling one day basis (per two turbines and two duct burners) The heat input rate of each Siemens combustion turbine will be 2,356 MMBtu/hr(HHV)	USE OF NATURAL GAS A CLEAN BURNING FUEL	13	lb/hr		AVERAGE OF THREE ONE HOUR TESTS	0			0	
*NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2013	COMBINED CYCLE COMBUSTION TURBINE WITHOUT DUCT BURNER - GENERAL ELECTRIC	Natural Gas	33691	MMCF/YR	Natural Gas Usage <= 33,691 MMH <sup>3</sup> /yr per 365 consecutive day period, rolling one day basis (per two turbines and two duct burners) The heat input rate of each General Electric combustion turbine will be 2,312 MMBtu/hr(HHV)	Use of Natural Gas as a clean burning fuel	12.7	lb/hr		AVERAGE OF THREE ONE HOUR TESTS	0			0	
*NJ-0082	WEST DEPTFORD ENERGY STATION	7/18/2014	Combined Cycle Combustion Turbine without Duct Burner	Natural Gas	20282	MMCF/YR	Four GE 7FA combined cycle turbines, dry low NOx burners and selective catalytic reduction. These limits are for each of the 4 turbines individually, while operating with the duct burners on. This permit is a modification to RBLC OH-0252 to remove hourly restrictions on duct burners.	Use of natural gas a clean burning fuel	10	lb/hr		AVERAGE OF THREE ONE HOUR STACK TESTS	0			0	
*OH-0352	OREGON CLEAN ENERGY CENTER	6/18/2013	2 Combined Cycle Combustion Turbines-Siemens, without duct burners	Natural Gas	515609	MMSCF/rolling 12-months	Two Mitsubishi 2932 MMBtu/H combined cycle combustion turbines, both with 300 MMBtu/H duct burners, with dry low NOx combustors, SCR, and catalytic oxidizer. Will install either 2 Siemens or 2 Mitsubishi, not both (not determined). Short term limits are different with and without duct burners. This process without duct burners.	clean burning fuel, only natural gas	13.3	lb/hr			61.3	T/YR	PER ROLLING 12-MONTHS	0	
*OH-0352	OREGON CLEAN ENERGY CENTER	6/18/2013	2 Combined Cycle Combustion Turbines-Mitsubishi, without duct burners	Natural Gas	47917	MMSCF/rolling 12-MO	Two Mitsubishi 2932 MMBtu/H combined cycle combustion turbines, both with 300 MMBtu/H duct burners, with dry low NOx combustors, SCR, and catalytic oxidizer. Will install either 2 Siemens or 2 Mitsubishi, not both (not determined). Short term limits are different with and without duct burners. This process without duct burners.	clean burning fuel, only natural gas	11.3	lb/hr			44.2	T/YR	PER ROLLING 12-MONTHS	0	
*OH-0356	DUKE ENERGY HANGING ROCK ENERGY	12/18/2012	Turbines (4) (model GE 7FA) Duct Burners Off	NATURAL GAS	172	MW	Four GE 7FA combined cycle turbines, dry low NOx burners and selective catalytic reduction. These limits are for each of the 4 turbines individually, while operating with the duct burners off. This permit is a modification to RBLC OH-0252 to remove hourly restrictions on duct burners.	Burning natural gas in an efficient combustion turbine	15	lb/hr			87.2	T/YR	PER ROLLING 12-MONTHS	0	
*PA-0286	MOXIE ENERGY LLC/PATRIOT GENERATION PLT	1/31/2013	Combined Cycle Power Blocks 472 MW -(2)	Natural Gas	0		Two natural-gas-fired combined cycle powerblocks where each powerblock consists of a combustion turbine and heat recovery steam generator with duct burner.		0.0057	LB/MMBTU			54	T/YR	TOTAL PM	0	
*PA-0291	HICKORY RUN ENERGY STATION	4/23/2013	COMBINED CYCLE UNITS #1 and #2	Natural Gas	3.4	MMCF/HR	The Permittee shall select and install any of the turbine options listed below (or newer versions of these turbines if the Department determines that such newer versions achieve equivalent or better emissions rates and exhaust parameters) 1. General Electric 7FA (GE 7FA) 2. Siemens SGT6-5000F (Siemens F) 3. Mitsubishi M501G (Mitsubishi G) 4. Siemens SGT6-8000H (Siemens H) The emissions listed are for the Siemens SGT6-8000H unit.		18.5	lb/hr W/ DUCT BURNER			11	lb/hr WITHOUT	62.89	T/YR 12-MONTH ROLLIN	INCLUDING STARTUP AND SHUTDOWN
*PA-0296	BERKS HOLLOW ENERGY ASSOC LLC/ONTELAUNEE	12/17/2013	Turbine, Combined Cycle, #1 and #2	Natural Gas	3046	MMBTU/hr	Equipped with SCR and Oxidation Catalyst		48.56	TPY		12-MONTH ROLLING TOTAL	10	lb/hr	0		
*PA-0296	BERKS HOLLOW ENERGY ASSOC LLC/ONTELAUNEE	12/17/2013	Turbine, Combined Cycle, #1 and #2	Natural Gas	3046	MMBTU/hr	Equipped with SCR and Oxidation Catalyst		48.56	TPY		12-MONTH ROLLING TOTAL	0		0		
*TX-0660	FGE TEXAS POWER I AND FGE TEXAS POWER II	3/24/2014	Alstom Turbine	Natural Gas	230.7	MW	Four (4) Alstom GT24 CTGs, each with a HRSG and DBs, max design capacity 409 MMBtu/hr	Low sulfur fuel, good combustion practices	2	PPMVD			0		0		
*TX-0678	FREEPORT LNG PRETREATMENT FACILITY	7/16/2014	Combustion Turbine	natural gas	87	MW	The exhaust heat from the turbine will be used to heat a heating medium which is used to regenerate rich amine from the acid gas removal system.		15.22	lb/hr			0		0		
*TX-0689	CEDAR BAYOU ELECTRIC GENERATION STATION	8/29/2014	Combined cycle natural gas turbines	Natural Gas	225	MW		Good combustion practices, natural gas	0				0		0		
*TX-0698	BAYPORT COMPLEX	9/5/2013	(4) cogeneration turbines	natural gas	90	MW	(4) GE 7EA turbines providing power and process steam		0				0		0		
*TX-0709	SAND HILL ENERGY CENTER	9/13/2013	Natural gas-fired combined cycle turbines	Natural Gas	173.9	MW			0				0		0		
*TX-0712	TRINIDAD GENERATING FACILITY	11/20/2014	combined cycle turbine	natural gas	497	MW	The facility will consist of a Mitsubishi Heavy Industries (MHI) J model gas fired combustion turbine nominally rated at 497 megawatts (MW) equipped with a HRSG and DB with a maximum design capacity of 402 million British thermal units per hour (MMBTU/hr). The gross nominal output of the CTG with HRSG and DB is 530 MW.		0				0		0		
*TX-0730	COLORADO BEND ENERGY CENTER	4/1/2015	Combined-cycle gas turbine electric generating facility	natural gas	1100	MW	combined cycle power plant that uses two combustion turbines and one steam turbine, model GE 7HA.02	efficient combustion, natural gas fuel	43	lb/hr			0		0		

**Table D-A-8**  
**Particulate Matter (PM) RBLC Search - Combustion Turbines Firing Natural Gas (With Duct Burning)**  
**Invenergy, LLC - Allegheny County Energy Center Project**

RBLCD	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
*TX-0730	COLORADO BEND ENERGY CENTER	4/1/2015	Combined-cycle gas turbine electric generating facility	natural gas	1100	MW	combined cycle power plant that uses two combustion turbines and one steam turbine, model GE 7HA.02	efficient combustion, natural gas fuel	43	lb/hr		0			0		
*TX-0751	EAGLE MOUNTAIN STEAM ELECTRIC STATION	6/18/2015	Combined Cycle Turbines (4gt;25 MW) 4E° natural gas	natural gas	210	MW	Two power configuration options authorized. Siemens 4E° 231 MW + 500 million British thermal units per hour (MMBtu/hr) duct burner. GE 4E° 210 MW + 349.2 MMBtu/hr duct burner.		35.47	lb/hr		81.88	T/YR		0		
*TX-0767	LON C. HILL POWER STATION	10/2/2015	Combined Cycle Turbines (4gt;25 MW)	natural gas	195	MW	Two power configuration options authorized. Siemens 4E° 240 MW + 250 million British thermal units per hour (MMBtu/hr) duct burner. GE 4E° 195 MW + 670 MMBtu/hr duct burner.	Good combustion practices and use of pipeline quality natural gas	16	lb/hr		109.5	TPY		0		
*VA-0321	BRUNSWICK COUNTY POWER STATION	3/12/2013	COMBUSTION TURBINE GENERATORS, (3)	Natural Gas	3442	MMBTU/H	Three (3) Mitsubishi M501 GAC combustion turbine generators with HRSG duct burners (natural gas-fired).	Low sulfur/carbon fuel and good combustion practices.	0.0033	LB/MMBTU	3 H AVG/WITHOUT DUCT BURNING	9.7	lb/hr	3 H AVG/WITHOUT DUCT BURNING	0		
*VA-0321	BRUNSWICK COUNTY POWER STATION	3/12/2013	COMBUSTION TURBINE GENERATORS, (3)	Natural Gas	3442	MMBTU/H	Three (3) Mitsubishi M501 GAC combustion turbine generators with HRSG duct burners (natural gas-fired).	Low sulfur/carbon fuel and good combustion practices.	0.0033	LB/MMBTU	3 H AVG/WITHOUT DUCT BURNING	9.7	lb/hr	3 H AVG/WITHOUT DUCT BURNING	0		
AK-0071	INTERNATIONAL STATION POWER PLANT	12/20/2010	GE LM6000PF-25 Turbines (4)	Natural Gas	59900	hp ISO	Turbine-duct burner pairs exhaust through common stack.	Good Combustion Practices	0.0066	LB/MMBTU	3-HOUR AVERAGE	0			0		
AK-0073	INTERNATIONAL STATION POWER PLANT	12/20/2010	Fuel Combustion	Natural Gas	59900	HP	EU IDs 5-8 Combined Cycle Natural Gas-fired Combustion Turbines rated at 59,900 hp (44.7 MW).	Combustion Turbines EU IDs 5-8 use good combustion practices involve increasing the residence time and excess oxygen to ensure complete combustion which in turn minimize particulates without an add-on control technology.	0.0066	LB/MMBTU	3-HOUR	0			0		
CA-1144	BLYTHE ENERGY PROJECT II	4/25/2007	2 COMBUSTION TURBINES	NATURAL GAS	170	MW	EACH TURBINE WILL PRODUCE 170 MW	USE PUBLIC UTILITY COMMISSION QUALITY NATURAL GAS W/ SULFUR CONTENT LESS THAN OR EQUAL TO 0.5 GRAINS PER 100 SCF	6	lb/hr		61	T/YR		0		
CA-1191	VICTORVILLE 2 HYBRID POWER PROJECT	3/11/2010	COMBUSTION TURBINE #2 (NORMAL OPERATION, NO DUCT BURNING)	NATURAL GAS	154	MW	154 MW Combined Cycle Combustion Turbine Generator	PUC QUALITY NATURAL GAS	12	lb/hr	PUC QUALITY NATURAL GAS	0			0		
CA-1191	VICTORVILLE 2 HYBRID POWER PROJECT	3/11/2010	COMBUSTION TURBINE #1 (NORMAL OPERATION, NO DUCT BURNING)	Natural Gas	154	MW	154 MW Combined Cycle Combustion Turbine Generator	PUC QUALITY NATURAL GAS	12	lb/hr	12-MONTH ROLLING AVG (NO DUCT BURNING)	0			0		
CA-1192	AVENAL ENERGY PROJECT	6/21/2011	COMBUSTION TURBINE #1 (NORMAL OPERATION, NO DUCT BURNING)	NATURAL GAS	180	MW		USE PUC QUALITY NATURAL GAS	8.91	lb/hr	12-MONTH ROLLING AVG	0			0		
CA-1192	AVENAL ENERGY PROJECT	6/21/2011	COMBUSTION TURBINE #2 (NORMAL OPERATION, NO DUCT BURNING)	NATURAL GAS	180	MW		USE PUC QUALITY NATURAL GAS	8.91	lb/hr	12-MONTH ROLLING AVG	0			0		
CA-1198	MORRO BAY POWER PLANT	9/25/2008	COMBUSTION TURBINE GENERATOR	NATURAL GAS	180	MW		USE PIPELINE QUALITY NATURAL GAS, OPERATE DUCT BURNERS NO MORE THAN 4000 HRS PER YEAR (12-MONTH ROLLING AVG BASIS)	11	lb/hr	6-HR ROLLING AVG (NO DUCT BURNING)	13.3	lb/hr	6-HR ROLLING AVG (W/ DUCT BURNING)	0		
CA-1211	COLUSA GENERATING STATION	3/11/2011	COMBUSTION TURBINES (NORMAL OPERATION)	NATURAL GAS	172	MW	TWO (2) NATURAL GAS FIRED TURBINES AT 172 MW EACH. BOTH TURBINES EQUIPPED WITH A 688 MMBTU/HR DUCT BURNER AND HRSG.	USE NATURAL GAS	13.5	lb/hr	STACK TEST	0			0		
CA-1212	PALMDALE HYBRID POWER PROJECT	10/18/2011	COMBUSTION TURBINES (NORMAL OPERATION)	NATURAL GAS	154	MW	TWO NATURAL GAS-FIRED COMBUSTION TURBINE-GENERATORS (CTGS) RATED AT 154 MEGAWATT (MW, GROSS) EACH. TWO HEAT RECOVERY STEAM GENERATORS (HRSG), ONE STEAM TURBINE-GENERATOR (STG) RATED AT 267 MW, AND 251 ACRES OF PARABOLIC SOLAR-THERMAL COLLECTORS WITH ASSOCIATED HEAT-TRANSFER EQUIPMENT.	USE PUC QUALITY NATURAL GAS	0.0048	LB/MMBTU	9-HR AVG (NO DUCT BURNING)	0.0049	LB/MMBTU	9-HR AVG (W/ DUCT BURNING)	0		
CO-0056	ROCKY MOUNTAIN ENERGY CENTER, LLC	5/2/2006	NATURAL-GAS FIRED, COMBINED-CYCLE TURBINE	NATURAL GAS	300	MW	ONE NEW COMBINED-CYCLE TURBINE IS BEING ADDED TO AN EXISTING FACILITY.	NATURAL GAS QUALITY FUEL ONLY AND GOOD COMBUSTION CONTROL PRACTICES.	0.0074	LB/MMBTU		10	% OPACITY		0		
CT-0151	KLEEN ENERGY SYSTEMS, LLC	2/25/2008	SIEMENS SGT6-5000F COMBUSTION TURBINE #1 AND #2 (NATURAL GAS FIRED) WITH 445 MMBTU/HR NATURAL GAS DUCT BURNER	NATURAL GAS	2.1	MMCF/H	THROUGHPUT IS FOR TURBINE ONLY WHEN FIRING NATURAL GAS TURBINE: 2136 MMBTU/HR (2.095 MMCF/HR) DUCT BURNER: 445 MMBTU/HR (0.436 MMCF/HR)	EMISSION RATES ARE FOR EACH COMBUSTION TURBINE FIRING NATURAL GAS, NOT COMBINED. 2117 MMBTU/HR FUEL OIL.	11	lb/hr	W/OUT DUCT BURNER	15.2	lb/hr	W/ DUCT BURNER	0		
FL-0286	FPL WEST COUNTY ENERGY CENTER	1/10/2007	COMBINED CYCLE COMBUSTION GAS TURBINES - 6 UNITS	NATURAL GAS	2333	MMBTU/H	EACH COMBINED CYCLE UNIT SYSTEM (TWO &#x2013;ON-1&#x2013;S) WILL CONSIST OF: THREE NOMINAL 250 MEGAWATT MODEL 501G GAS TURBINE-ELECTRICAL GENERATOR SETS WITH EVAPORATIVE INLET COOLING SYSTEMS; THREE SUPPLEMENTARY-FIRED HEAT RECOVERY STEAM GENERATORS (HRSG&#x2013;S) WITH SCR REACTORS; ONE NOMINAL 428 MMBTU/HR (LHV) GAS-FIRED DUCT BURNER LOCATED WITHIN EACH OF THE THREE HRSG&#x2013;S; THREE 149 FEET EXHAUST STACKS; ONE 26 CELL MECHANICAL DRAFT COOLING TOWER; AND A COMMON NOMINAL 500 MW STEAM-ELECTRICAL GENERATOR.	FUEL/HEAT INPUT RATE (LHV): OIL: 2,117 MMBTU/H COMBINED CYCLE UNIT 3 WILL CONSIST OF: THREE NOMINAL 250 MW COMBUSTION TURBINE-ELECTRICAL GENERATORS (CTG) WITH EVAPORATIVE INLET COOLING SYSTEMS; THREE SUPPLEMENTARY-FIRED HEAT RECOVERY STEAM GENERATORS (HRSG) WITH SELECTIVE CATALYTIC REDUCTION (SCR) REACTORS AND A COMMON NOMINAL 500 MW STEAM-ELECTRICAL GENERATOR.	2	GS/100 SCF GAS		0			0		
FL-0303	FPL WEST COUNTY ENERGY CENTER UNIT 3	7/30/2008	THREE NOMINAL 250 MW CTG (EACH) WITH SUPPLEMENTARY-FIRED HRSG	NATURAL GAS	2333	MMBTU/H			2	GR/100 SCF GAS		0.0015	PERCENT (FUEL OIL)		0		
FL-0304	CANE ISLAND POWER PARK	9/8/2008	300 MW COMBINED CYCLE COMBUSTION TURBINE	NATURAL GAS	1860	MMBTU/H		FUEL SPECIFICATIONS : 2 GR S/100 SCF OF GAS	2	GR S/100 SCF GAS		10	OPACITY		0		

**Table D-A-8  
Particulate Matter (PM) RBLCL Search - Combustion Turbines Firing Natural Gas (With Duct Burning)  
Invenergy, LLC - Allegheny County Energy Center Project**

RBLCLID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
FL-0337	POLK POWER STATION	10/14/2012	Combine cycle power block (4 on 1)	natural gas	1160	MW	Based on the emission standard is either NSPS Subpart KKKK or Department BACT determinations. The BACT emission standards for NOX while operating in combined cycle are more stringent than the corresponding Subpart KKKK emissions standards of 15 and 42 ppbvd @15% O2 on a 30-day rolling average for natural gas and fuel oil, respectively.	work practices	2	GR S/100 SCF OF GAS		0.0015	S FUEL OIL		0		
LA-0192	CRESCENT CITY POWER	6/6/2005	GAS TURBINES - 187 MW (2)		2006	MMBTU/H		USE OF CLEAN BURNING FUEL AND GOOD COMBUSTION PRACTICES	29.4	lb/hr	HOURLY MAXIMUM	128.8	T/YR	ANNUAL MAXIMUM	0		NOT AVAILABLE
LA-0254	NINEMILE POINT ELECTRIC GENERATING PLANT	8/16/2011	COMBINED CYCLE TURBINE GENERATORS (UNITS 6A & 6B)	NATURAL GAS	7146	MMBTU/H	TURBINES ALSO PERMITTED TO BURN NO. 2 FUEL OIL AND ULTRA LOW SULFUR DIESEL	WHILE FIRING FUEL OIL: USE OF ULTRA LOW SULFUR FUEL OIL AND GOOD COMBUSTION PRACTICES	26.23	lb/hr	HOURLY AVERAGE W/O DUCT BURNER	33.16	lb/hr	HOURLY AVERAGE W/ DUCT BURNER	0		
LA-0256	COGENERATION PLANT	12/6/2011	COGENERATION TRAINS 1-3 (1-10, 2-10, 3-10)	NATURAL GAS	475	MMBTU/H	FUEL OIL USE IS LIMITED TO 1000 HOURS PER YEAR. EACH COGEN TRAIN CONSISTS OF A 50 MW GE LM6000 PF SPRINT TURBINE AND A HEAT RECOVERY STEAM GENERATOR EQUIPPED WITH A 70 MM BTU/HR DUCT BURNER	USE OF NATURAL GAS AS FUEL AND GOOD COMBUSTION PRACTICES	3.72	lb/hr	HOURLY MAXIMUM	0			0		
LA-0257	SABINE PASS LNG TERMINAL	12/6/2011	Combined Cycle Refrigeration Compressor Turbines (8)	natural gas	286	MMBTU/H	GE LM2500+G4	Good combustion practices and fueled by natural gas	2.08	lb/hr	HOURLY MAXIMUM	0			0		
NC-0101	FORSYTH ENERGY PLANT	9/29/2005	TURBINE, COMBINED CYCLE, NATURAL GAS, (3)	NATURAL GAS	1844.3	MMBTU/H	Each of these units have a natural gas-fired heat recovery steam generator and a natural gas-fired duct burner. Each CT combusts natural gas as the primary fuel and very low-sulfur No. 2 fuel oil as a backup fuel. The use of fuel oil is limited to 1,200 hours per year and only during the months of November through March, and is listed as a separate process. These units are listed as a combined source (all three units) for each type of fuel.	USE OF ONLY CLEAN-BURNING LOW-SULFUR FUELS AND GOOD COMBUSTION PRACTICES	0.019	LB/MMBTU	based on 3-hour average	0			0		
NJ-0074	WEST DEPTFORD ENERGY	5/6/2009	TURBINE, COMBINED CYCLE	NATURAL GAS	17298	MMFT3/YR		CLEAN FUELS - NATURAL GAS AND ULTRA LOW SULFUR (15PPM SULFUR) DISTILLATE OIL	18.66	lb/hr		0			0		
NY-0095	CATHINES BELLPORT ENERGY CENTER	5/10/2006	COMBUSTION TURBINE	NATURAL GAS	2221	MMBTU/H	COMBINED CYCLE WITH DUCT FIRING UP TO 494 MMBTU/H	LOW SULFUR FUEL	0.0055	LB/MMBTU	NO DUCT BURNING	0.0066	LB/MMBTU	W/ DUCT BURNING	0		
OK-0117	PSO SOUTHWESTERN POWER PLT	2/9/2007	GAS-FIRED TURBINES					USE OF LOW ASH FUEL (NATURAL GAS) AND EFFICIENT COMBUSTION	0.0093	LB/MMBTU		0			0		
OK-0129	CHOUTEAU POWER PLANT	1/23/2009	COMBINED CYCLE COGENERATION & 25MW	NATURAL GAS	1882	MMBTU/H	SIEMENS V84.3A	NATURAL GAS FUEL	6.59	lb/hr	3-H AVG	0.0035	LB/MMBTU	24-H AVG	0		
OR-0048	CARTY PLANT	12/29/2010	COMBINED CYCLE NATURAL GAS-FIRED ELECTRIC GENERATING UNIT	NATURAL GAS	2866	MMBTU/H		CLEAN FUEL	2.5	LB/MMCF		0			0		
TX-0516	CITY PUBLIC SERVICE JK SPRUCE ELECTRIC GENERATING UNIT 2	12/28/2006	SPRUCE POWER GENERATOR UNIT NO 2						264	lb/hr		525	T/YR		0		
TX-0590	KING POWER STATION	8/5/2010	Turbine	natural gas	1350	MW	The plant will be designed to generate 1,350 nominal megawatts of power. There are two configuration scenarios: either four Siemens SGT6-5000F CTGs in combined-cycle mode (Scenario A) or four GE Frame 7FA CTGs in combined cycle mode (Scenario B). Scenario B also includes one or two auxiliary boilers. (2) GE7FA at 195 MW each. (1) steam turbine at 200 MW.	use of low ash fuel (natural gas or low sulfur diesel as a backup)	11.1	lb/hr		19.8	lb/hr		0		
TX-0600	THOMAS C. FERGUSON POWER PLANT	9/1/2011	Natural gas-fired turbines	natural gas	390	MW	Each turbine is equipped with an unfired heat recovery steam generator (HRSG), which provides steam for the steam turbine.	pipeline quality natural gas	33.43	lb/hr	1-H	0			0		
TX-0618	CHANNEL ENERGY CENTER LLC	10/15/2012	Combined Cycle Turbine	natural gas	180	MW	The turbine is a Siemens 501F rated at a nominal 180 MW and the duct burner will have a maximum design heat input of 475 MMBtu/hr.	good combustion and the use of gaseous fuel	27	lb/hr		0			0		
TX-0619	DEER PARK ENERGY CENTER	9/26/2012	Combined Cycle Turbine	natural gas	180	MW	natural gas-fired combined cycle turbine generator with a heat recovery steam generator equipped with a duct burner. The turbine is a Siemens 501F rated at a nominal 180 megawatts and the DB will have a maximum design rate capability of 725 million British thermal units per hour	good combustion and the use of natural gas	27	lb/hr		0			0		
TX-0620	ES JOSLIN POWER PLANT	9/12/2012	Combined cycle gas turbine	natural gas	195	MW	The three combustion turbine generators (CTG) will be the General Electric 7FA, each with a maximum base-load electric power output of approximately 195 megawatts (MW). The steam turbine is rated at approximately 235 MW. This project also includes the installation of two emergency generators, one fire water pump, and auxiliary equipment. No duct burners.	good combustion and natural gas as fuel	18	lb/hr	PER TURBINE	0		3 HR. AVG. (WITH DUCT BURNER FIRING)	0		
VA-0315	WARREN COUNTY POWER PLANT - DOMINION	12/17/2010	COMBINED CYCLE TURBINE & DUCT BURNER, 3	Natural Gas	2996	MMBTU/H	Emissions are for one of three units (Mitsubishi natural gas-fired combustion turbine (CT) generator, Model M501 GAC).	Natural Gas only, fuel has maximum sulfur content of 0.0003% by weight.	8	lb/hr	WITHOUT DUCT BURNER FIRING)	14	lb/hr		0		
VA-0319	GATEWAY COGENERATION 1, LLC - SMART WATER PROJECT	8/27/2012	COMBUSTION TURBINES, (2)	Natural Gas	593	MMBTU/H	Burns primarily natural gas but has the capacity to burn up to 500 hours of ultra low sulfur diesel fuel (ULSD) as backup.	Clean-burning fuels and good combustion practices.	5	lb/hr	3 H AVG	0			0		
WA-0328	BP CHERRY POINT COGENERATION PROJECT	1/11/2005	GE 7FA COMBUSTION TURBINE & HEAT RECOVERY STEAM GENERATOR	NATURAL GAS	174	MW	THREE IDENTICAL CT & HRSG UNITS. EACH CT WILL HAVE AN ANNUAL AVERAGE CAPACITY RATING OF 1614 MMBTU/HR. EACH HRSG DUCT BURNER WILL HAVE A MAXIMUM FIRING RATE OF 105 MMBTU/HR.	LIMIT FUEL TYPE TO NATURAL GAS	0			0			0		*SEE NOTES
*WY-0070	CHEYENNE PRAIRIE GENERATING STATION	8/28/2012	Combined Cycle Turbine (EP011)	Natural Gas	40	MW		good combustion practices	4	lb/hr	3-HOUR AVERAGE	17.5	TONS	CALENDAR YEAR	0		
	Astoria Energy LLC		Combustion Turbine	Natural Gas	1000	MW		Clean Fuel	0.0098	lb/MMBtu	1-hr average; Duct Burners Off	12.9	lb/hr	1-hr average; Duct Burners Off			
	Tanaska Partners LLC		Combustion Turbine	Natural Gas	3147	MMBtu/hr			11.8	lb/hr		0.0039	lb/MMBtu				
	Hawkeye Generating, LLC			Natural Gas	615	MW			0.0063	lb/MMBtu		121.77	tpy				
	Liberty Electric Power, LLC				1954	MMBtu/hr	Without DB		22.6	lb/hr							
	Liberty Electric Power, LLC				1954	MMBtu/hr	With DB		28.1	lb/hr							
	Gibson County Generation, LLC		Combustion Turbine	Natural Gas	417	MW			0.0048	lb/MMBtu	24-hr average hourly basis						
	York Energy Center Block 1				1574	MMBtu/hr			0.0141	lb/MMBtu							
	Footprint Power Salem Harbor Development LP		Combustion Turbine	Natural Gas	346	MW		Clean Fuel	8.8	lb/hr	1-hr average; Duct Burners Off	0.0071	lb/MMBtu	1-hr average; Duct Burners Off			
	Footprint Power Salem Harbor Development LP		Combustion Turbine	Natural Gas	346	MW		Clean Fuel	0.041	lb/MW-hr	1-hr average; Duct Burners Off						

**Table D-A-8**  
**Particulate Matter (PM) RBLC Search - Combustion Turbines Firing Natural Gas (With Duct Burning)**  
**Invenergy, LLC - Allegheny County Energy Center Project**

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
	GenConn Middletown LLC		Combustion Turbine	Natural Gas	474.9	MMBtu/hr				6	lb/hr						
	PacifiCorp Energy		Block 1 CT	Natural Gas						10.8	lb/hr			30-day rolling average			
	PacifiCorp Energy		Block 2 CT	Natural Gas	629	MW				14	lb/hr			30-day rolling average			
	Pioneer Valley		Combustion Turbine	Natural Gas	387	MW				0.004	lb/MMBtu						
	WARREN COUNTY POWER PLANT - DOMINION		COMBINED CYCLE TURBINE & DUCT BURNER, 3	Natural Gas	2996	MMBTU/H	Emissions are for one of three units (Mitsubishi natural gas-fired combustion turbine (CT) generator, Model M501 GAC).	Oxidation catalyst and good combustion practices.	15.5	lb/hr	(W/O DUCT BURNER FIRING)	0.0052	lb/MMBtu				
	Woodbridge Energy Center (CPV Shore, LLC)			Natural Gas	2,307	MMBtu/hr				12.1	lb/hr						
	Hummel Station LLC		Combustion Turbine	Natural Gas	2,254.00	MMBtu/hr				17.3	lb/hr						
	Hummel Station LLC		Combustion Turbine	Natural Gas	2,254.00	MMBtu/hr				14	lb/hr						
	Gibson County Generation, LLC		Combustion Turbine	Natural Gas	417	MW						0.0088	lb/MMBtu	24-hr average			
	York Energy Center Block 2	6/15/2015			2512.5	MMBtu/hr	firing NG without duct burner			10.7	lb/hr	average of 3 test runs					

**Table D-A-9**  
**Particulate Matter 10 microns(PM) RBLC Search - Combustion Turbines Firing Natural Gas (With Duct Burning)**  
**Invenergy, LLC - Allegheny County Energy Center Project**

RBL CID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
CT-0161	KILLINGLY ENERGY CENTER	6/30/2017	Natural Gas w/Duct Firing	Natural Gas	2639	MMBTU/hr	Duct burner MRC is 946 MMBtu/hr	Good Combustion	0.005	LB/MMBTU		0			0		
LA-0313	ST. CHARLES POWER STATION	8/31/2016	SCPS Combined Cycle Unit 1A	Natural Gas	3625	MMBTU/hr		Good combustion practices and clean burning fuels (natural gas)	17.52	LB/H	HOURLY MAXIMUM	73.35	T/YR		0		
LA-0313	ST. CHARLES POWER STATION	8/31/2016	SCPS Combined Cycle Unit 1B	Natural Gas	3625	MMBTU/hr		Good combustion practices and clean burning fuels (natural gas)	17.52	LB/H	HOURLY MAXIMUM	73.35	T/YR	ANNUAL MAXIMUM	0		
MI-0423	INDECK NILES, LLC	1/4/2017	FGCTGHRSG (2 Combined Cycle CTGs with HRSGs)	Natural gas	8322	MMBTU/H	There are 2 combined cycle natural gas-fired combustion turbine generators (CTGs) with heat recovery steam generators (HRSG) identified as EUCTGHRSG1 & EUCTGHRSG2 in the flexible group FGCTGHRSG. The total hours for startup and shutdown for each train shall not exceed 500 hours per 12-month rolling time period.  The throughput capacity is 3421 MMBTU/H for each turbine, and 740 MMBTU/H for each duct burner for a combined throughput of 4161 MMBTU/H or 8322 MMBTU/H for both trains.	Good combustion practices, inlet air conditioning, and the use of pipeline quality natural gas.	19.8	LB/H	TEST PROTOCOL WILL SPECIFY AVG TIME	0			0		
MI-0424	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	12/5/2016	FGCTGHRSG (2 Combined cycle CTGs with HRSGs; EUCTGHRSG10 & EUCTGHRSG11) FGTURB DB1-3 (3) combined cycle combustion turbine and heat recovery steam generator trains)	Natural gas	554	MMBTU/H, each	Two combined cycle natural gas fired combustion turbine generators (CTGs) with heat recovery steam generators (HRSG) (EUCTGHRSG10 & EUCTGHRSG11 in FGCTGHRSG). The total hours for both units combined for startup and shutdown shall not exceed 635 hours per 12-month rolling time period.	Good combustion practices and the use of pipeline quality natural gas.	0.014	LB/MMBTU	TEST PROTOCOL WILL SPECIFY AVG TIME	0			0		
*MI-0432	NEW COVERT GENERATING FACILITY	7/30/2018	EUCTGHRSG (South Plant): A combined cycle natural gas-fired combustion turbine generator with heat recovery steam generator.	Natural gas	1230	MW	Three (3) combined-cycle combustion turbine (CT) / heat recovery steam generator (HRSG) trains. Each CT is a natural gas fired Mitsubishi model 501G, equipped with dry low NOx combustor and inlet air evaporative cooling. Each HRSG includes a natural gas fired duct burner with a 256 MMBtu/hr heat input capacity and a dry low NOx burner.	Use clean fuel (natural gas) and good combustion practices.	10.7	LB/H	HOURLY; EACH CT/HRSG TRAIN	0			0		
*MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUCTGHRSG (North Plant): A combined cycle natural gas-fired combustion turbine generator with heat recovery steam generator.	Natural gas	500	MW	A combined-cycle natural gas-fired combustion turbine generator (CTG) with heat recovery steam generator (HRSG) in a 1x1 configuration with a steam turbine generator (STG) for a nominal 500 MW electricity production. The CTG is a H-class turbine with a rating of 3,080 MMBTU/H (HHV). The HRSG is equipped with a natural gas-fired duct burner rated at 755 MMBTU/H (HHV) at ISO conditions to provide heat for additional steam production. The HRSG is not capable of operating independently from the CTG. The CTG/HRSG is equipped with dry low NOx burner (DLNB), SCR, and an oxidation catalyst.	Good combustion practices, inlet air conditioning, and the use of pipeline quality natural gas.	19.1	LB/H	HOURLY	0			0		
*MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUCTGHRSG (North Plant): A combined-cycle natural gas-fired combustion turbine generator with heat recovery steam generator.	Natural gas	500	MW	A combined-cycle natural gas-fired combustion turbine generator (CTG) with heat recovery steam generator (HRSG) in a 1x1 configuration with a steam turbine generator (STG) for a nominal 500 MW electricity production. The CTG is a H-class turbine with a rating of 3,080 MMBTU/hr (HHV). The HRSG is equipped with a natural gas-fired duct burner rated at 755 MMBTU/hr (HHV) at ISO conditions to provide heat for additional steam production. The HRSG is not capable of operating independently from the CTG. The CTG/HRSG is equipped with dry low NOx burner (DLNB), SCR, and an oxidation catalyst.	Good combustion practices, inlet air conditioning, and the use of pipeline quality natural gas.	19.1	LB/H	HOURLY	0			0		
*MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	FGCTGHRSG (EUCTGHRSG1 & EUCTGHRSG2)	Natural gas	0		Plant nominal 1,150 MW electricity production. Turbines are each rated at 3,658 MMBTU/H and HRSG duct burners are each rated at 800 MMBTU/H.  The HRSGs are not capable of operating independently from the CTGs.	Good combustion practices, inlet air conditioning, and the use of pipeline quality natural gas.	16	LB/H	HOURLY; EACH UNIT	12.2	LB/H	HOURLY; EACH UNIT W/O DUCT BURNER FIRING	0		
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	Combined Cycle Combustion Turbine firing Natural Gas with Duct Burner	natural gas	4000	lb/hr		COMPLIANCE BY STACK TESTING	18.3	LB/H	AV OF THREE ONE H STACK TESTS EVERY 5 YR	0			0		
*PA-0306	TENASKA PA PARTNERS/WESTMORELAND GEN FAC	2/12/2016	Large combustion turbine	Natural Gas	0		This process entry is for operations with the duct burner. Limits entered are for each turbine. Emission limits are for each turbine operating with duct burner and do not include startup/shutdown emissions. Tons per year limits is a cumulative value for all three CCCT. CEMS for NOx, CO, and O2. Each CCCT and duct burner have 5 operational scenarios: 1 CCCT with duct burner fired - fueled by NG only 2 CCCT with duct burner fired - fueled by NG blend with ethane 3 CCCT without duct burner fired - fueled by NG only 4 CCCT without duct burner fired - fueled by NG blend with ethane 5 CCCT without duct burner fired - fueled by ULSD (Limited to emergency use only)	Good combustion practices with the use of low ash/sulfur fuels	0.0039	LB/MMBTU		11.8	LB/HR		0		
*PA-0310	CPV FAIRVIEW ENERGY CENTER	9/2/2016	Combustion turbine and HRSG with duct burner NG only	Natural Gas	3338	MMBTU/hr		Low sulfur fuel, good combustion practices	0.005	LB/MMBTU		131.5	TONS	12-MONTH ROLLING BASIS	0		
TX-0819	GAINES COUNTY POWER PLANT	4/28/2017	Combined Cycle Turbine with Heat Recovery Steam Generator, fired Duct Burners, and Steam Turbine Generator	NATURAL GAS	426	MW	Four Siemens SGT6-5000F5 natural gas fired combustion turbines with HRSGs and Steam Turbine Generators	Pipeline quality natural gas; good combustion practices	0			0			0		
*VA-0325	GREENSVILLE POWER STATION	6/17/2016	COMBUSTION TURBINE GENERATOR WITH DUCT-FIRED HEAT RECOVERY STEAM GENERATORS (3)	natural gas	3227	MMBTU/HR	3227 MMBTU/HR CT with 500 MMBTU/HR Duct Burner, 3 on 1 configuration.	Low sulfur/carbon fuel and good combustion practices	0.0039	LB/MMBTU	AVG OF 3 TEST RUNS	0			0		
*IA-0107	MARSHALLTOWN GENERATING STATION	4/14/2014	Combustion turbine w/ combined cycle Electric Generation	natural gas	2258	mmBtu/hr			0.01	LB/MMBTU	AVERAGE OF 3 ONE-HOUR TEST RUNS	77.1	T/YR	12-MONTH ROLLING TOTAL	0		
*IL-0112	NELSON ENERGY CENTER	12/28/2010	Facility	Natural Gas	220	MW each	Two combined cycle combustion turbines followed by HRSGs with capability for supplemental fuel firing in HRSG for each combustion turbine using duct burners. EACH TURBINE IS EQUIPPED WITH DRY LOW NOX BURNERS, NATURAL GAS FIRED DUCT BURNERS, AND A HEAT RECOVERY STEAM GENERATOR IDENTIFIED AS HRSG#. NOX EMISSIONS CONTROLLED BY SELECTIVE CATALYTIC REDUCTION SYSTEMS (SCR#) ALONG WITH CO AND VOC EMISSIONS CONTROLLED BY OXIDATION CATALYST SYSTEMS (CAT#) IN EACH TURBINE. EACH STACK HAS CONTINUOUS EMISSIONS MONITORS FOR NOX AND CO. COMBINED NOMIAL POWER OUTPUT IS 1,350 MW.		0.012	LB/MMBTU	HOURLY AVERAGE	0			0		
*IN-0158	ST. JOSEPH ENEGRY CENTER, LLC	12/3/2012	FOUR (4) NATURAL GAS COMBINED CYCLE COMBUSTION TURBINES	NATURAL GAS	2300	MMBTU/H		GOOD CUMBUSTION PRACTICE AND FUEL SPECIFICATION	18	lb/hr	3 HOURS	0.0078	LB/MMBTU	3 HOURS	0		
*MA-0039	SALEM HARBOR STATION REDEVELOPMENT	1/30/2014	Combustion Turbine with Duct Burner	Natural Gas	2449	MMBTU/hr	two 315 MW (nominal) GE Energy 7F Series 5 Rapid Response Combined Cycle Combustion Turbines with Duct Burners and 31 MW (estimated) steam turbine generators		0.0062	LB/MMBTU	1 HR AVG/DO NOT APPLY DURING SS	13	lb/hr	1 HR AVG/DO NOT APPLY DURING SS	0		

**Table D-A-9  
Particulate Matter 10 microns(PM) RBLC Search - Combustion Turbines Firing Natural Gas (With Duct Burning)  
Invenery, LLC - Allegheny County Energy Center Project**

RBL CID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
*MD-0041	CPV ST. CHARLES	4/23/2014	2 COMBINED-CYCLE COMBUSTION TURBINES	NATURAL GAS	725	MEGAWATT	TWO GENERAL ELECTRIC (GE) P-CLASS ADVANCED COMBINED CYCLE COMBUSTION TURBINES (CTS) WITH A NOMINAL GENERATING CAPACITY OF 725 MW, COUPLED WITH A HEAT RECOVERY STEAM GENERATOR (HRSG) EQUIPPED WITH DUCT BURNERS, DRY LOW-NOX BURNERS, SCR, OXIDATION CATALYST	USE OF PIPELINE-QUALITY NATURAL GAS EXCLUSIVELY AND GOOD COMBUSTION PRACTICE	0.011	LB/MMBTU	AVERAGE OF THREE STACK TEST RUNS	0			0		
*MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014	2 COMBINED CYCLE COMBUSTION TURBINES WITH DUCT FIRING	NATURAL GAS	1000	MW	TWO MITSUBISHI & IHI P-CLASS ADVANCED MODEL COMBUSTION TURBINE GENERATORS (CTS) WITH A NOMINAL GENERATING CAPACITY OF 270 MW CAPACITY EACH, COUPLED WITH A HEAT RECOVERY STEAM GENERATOR (HRSG) EQUIPPED WITH DUCT BURNERS, DRY LOW-NOX COMBUSTORS, SELECTIVE CATALYTIC REDUCTION (SCR), OXIDATION CATALYST	EXCLUSIVE USE OF PIPELINE QUALITY NATURAL GAS AND EFFICIENT TURBINE DESIGN	38	lb/hr	AVERAGE OF 3 STACK TEST RUNS	0			0		
*MI-0402	SUMPTER POWER PLANT	11/17/2011	Combined cycle combustion turbine w/ HRSG	Natural gas	130	MW electrical output	This is a combined-cycle combustion turbine with a non-fired heat recovery steam generator (HRSG). Natural gas-fired combustion turbine conversion to combined-cycle.		0.0066	LB/MMBTU	TEST	7.4	lb/hr	TEST	0		
*MI-0405	MIDLAND COGENERATION VENTURE	4/23/2013	Natural gas fueled combined cycle combustion turbine generators (CTG) with HRSG and duct burner (DB)	Natural gas	2486	MMBTU/H	This process is permitted in a flexible group format, identified in the permit as FG-CTG/DB1-2 and is for two natural gas fired CTGs with each turbine containing a heat recovery steam generator (HRSG) to operate in combined cycle. The two CTGs (with HRSG) are connected to one steam turbine generator. Each CTG is equipped with a dry low NOx (DLN) burner and a selective catalytic reduction (SCR) system. Additionally, the HRSG is operating with a natural gas fired duct burner for supplemental firing.	Good combustion practices	0.008	LB/MMBTU	TEST PROTOCOL	19.9	lb/hr	TEST PROTOCOL	0		
*MI-0405	MIDLAND COGENERATION VENTURE	4/23/2013	Natural gas fueled combined cycle combustion turbine generators (CTG) with HRSG and duct burner (DB)	Natural gas	2486	MMBTU/H	This process is permitted in a flexible group format, identified in the permit as FG-CTG/DB1-2 and is for two natural gas fired CTGs with each turbine containing a heat recovery steam generator (HRSG) to operate in combined cycle. The two CTGs (with HRSG) are connected to one steam turbine generator. Each CTG is equipped with a dry low NOx (DLN) burner and a selective catalytic reduction (SCR) system. Additionally, the HRSG is operating with a natural gas fired duct burner for supplemental firing.	Good combustion practices	0.004	LB/MMBTU	TEST PROTOCOL	0			0		
*MI-0410	THETFORD GENERATING STATION	7/25/2013	FGCCA or FGCCB-4 nat. gas fired CTG w/ DB for HRSG	natural gas	2587	MMBTU/H heat input, each CTG	Technology A (4 total) is 2587 MMBTU/H design heat input each CTG. Technology B (4 total) is 2688 MMBTU/H design heat input each CTG. Permit was issued for either of two F Class turbine technologies with slight variations in emission rates. Applicant will select one technology. Installation is two separate CTG/HRSG trains driving one steam turbine electrical generator, Two 2X1 Blocks. Each CTG will be rated at 211 to 230 MW (gross) output and the station nominal generating capacity will be up to 1,400 MW.	Combustion air filters; efficient combustion control; low sulfur natural gas fuel	0.0066	LB/MMBTU	TEST PROTOCOL (3 1-H TESTS IF POSSIBLE)	0			0		
*MI-0412	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	12/4/2013	FG-CTG/HRSG: 2 Combined cycle CTGs with HRSGs with duct burners	natural gas	647	MMBTU/H for each CTG/HRSG	This process is identified in the permit as FGCTG/HRSG; it is 2 combined cycle natural gas-fired combustion turbine generators (CTGs) with Heat Recovery Steam Generators (HRSGs) equipped with duct burners for supplemental firing (EUCGTG/HRSG1 & EUCGTG/HRSG2 in FGCTG/HRSG). The total hours for both units combined for startup and shutdown shall not exceed 635 hours per 12-month rolling time period. Each CTG/HRSG shall not exceed 647 MMBtu/hr on a fuel heat input basis.	Good combustion practices and the use of pipeline quality natural gas.	0.014	LB/MMBTU	TEST PROTOCOL	0			0		
*NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITH DUCT BURNER - SIEMENS	Natural Gas	33691	MMBtu/hr PER YEAR	Natural Gas Usage <= 33,691 MMBtu/3yr per 365 consecutive day period, rolling one day basis (per two Siemens turbines and two associated duct burners) The heat input rate of the Siemens turbine will be 2,356 MMBtu/hr(HHV) with a 62.1 duct burner MMBtu/hr(HHV).	Use of natural gas a clean burning fuel	14	lb/hr	AVERAGE OF THREE TESTS	0			0		
*NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITH DUCT BURNER - GENERAL ELECTRIC	Natural gas	33691	MMCU/year.	Natural Gas Usage <= 33,691 MMBtu/3yr per 365 consecutive day period, rolling one day basis (per two turbines and two duct burners) The heat input rate of each General Electric combustion each turbine will be 2,312 MMBtu/hr(HHV) with a 164.4 MMBtu/hr duct burner This is a 427 MW Siemens Combined Cycle Turbine with duct burner Heat Input rate of the turbine = 2276 MMBtu/hr (HHV) Heat Input rate of the Duct burner = 777 MMBtu/hr(HHV)	Use of natural gas only as a clean burning fuel	14.6	lb/hr	AVERAGE OF THREE ONE HOUR TESTS	0			0		
*NJ-0082	WEST DEPTFORD ENERGY STATION	7/18/2014	Combined Cycle Combustion Turbine with Duct Burner	Natural Gas	20282	MMCF/YR	The fuel use of 20,282 MMCF/YR is for three turbines and three Duct burners.	Use of Natural gas a clean burning fuel	21.55	lb/hr	AVERAGE OF THREE STACK TEST RUNS	0.0069	LB/MMBTU	AVERAGE OF THREE STACK TEST RUNS	0		
*OH-0352	OREGON CLEAN ENERGY CENTER	6/18/2013	2 Combined Cycle Combustion Turbines-Siemens, with duct burners	Natural Gas	51560	MMSCF/rolling 12-MO	Two Siemens 2932 MMBtu/H combined cycle combustion turbines, both with 300 MMBtu/H duct burners, with dry low NOx combustors, SCR, and catalytic oxidizer. Will install either 2 Siemens or 2 Mitsubishi, not both (not determined). Short term limits are different with and without duct burners.	clean burning fuel, only natural gas	14	lb/hr		61.3	T/YR	PER ROLLING 12 MONTHS	0		
*OH-0352	OREGON CLEAN ENERGY CENTER	6/18/2013	2 Combined Cycle Combustion Turbines-Mitsubishi, with duct burners	Natural Gas	47917	MMSCF/rolling 12-MO	Two Mitsubishi 2932 MMBtu/H combined cycle combustion turbines, both with 300 MMBtu/H duct burners, with dry low NOx combustors, SCR, and catalytic oxidizer. Will install either 2 Siemens or 2 Mitsubishi, not both (not determined). Short term limits are different with and without duct burners.	clean burning fuel, only natural gas	10.1	lb/hr		44.2	T/YR	PER ROLLING 12 MONTHS	0		
*OH-0356	DUKE ENERGY HANGING ROCK ENERGY	12/18/2012	Turbines (4) (model GE 7FA) Duct Burners On	NATURAL GAS	172	MW	Four GE 7FA combined cycle turbines, dry low NOx burners and selective catalytic reduction. These limits are for each of the 4 turbines individually, while operating with the duct burners on. This permit is a modification to RBLC OH-0252 to remove hourly restrictions on duct burners.	Burning natural gas in an efficient combustion turbine	19.9	lb/hr		87.2	T/YR	PER ROLLING 12 MONTHS	0		
*OR-0050	TROUTDALE ENERGY CENTER, LLC	3/5/2014	Mitsubishi M501-GAC combustion turbine, combined cycle configuration with duct burner.	natural gas	2988	MMBTU/hr	or ULSD; Duct burner 499 MMBtu/hr, natural gas	Utilize only natural gas or ULSD fuel; Limit the time in startup or shutdown.	23.6	lb/hr	6-HR AVERAGE ON NG	42.3	lb/hr	6-HR AVERAGE ON ULSD	0		
*PA-0286	MOXIE ENERGY LLC/PATRIOT GENERATION PLT	1/31/2013	Combined Cycle Power Blocks 472 MW -(2)	Natural Gas	0		Two natural-gas-fired combined cycle powerblocks where each powerblock consists of a combustion turbine and heat recovery steam generator with duct burner.		0.0057	LB/MMBTU		54	T/YR	EACH UNIT	0		
*PA-0288	SUNBURY GENERATION LP/SUNBURY SES	4/1/2013	Combined Cycle Combustion Turbine and DUCT BURNER (3)	Natural Gas	2538000	MMBTU/H	Three powerblocks consisting of three (3) natural gas fired F class combustion turbines coupled with three (3) heat recovery steam generators (HRSGs) equipped with natural gas fired duct burners.		0.0088	LB/MMBTU	12-MONTH ROLLING TOTAL	0			0		
*PA-0296	BERKS HOLLOW ENERGY ASSOC LLC/ONTELAUNEE	12/17/2013	Turbine, Combined Cycle, #1 and #2	Natural Gas	2046	MMBTU/hr	Equipped with SCR and Oxidation Catalyst		48.56	T/YR		21.55	lb/hr		0		
*PA-0298	FUTURE POWER PA/GOOD SPRINGS NGCC FACILITY	3/4/2014	Turbine, COMBINED CYCLE UNIT (Siemens 5000)	Natural Gas	2267	MMBTU/hr			15.6	lb/hr	WITH DUCT BURNER	58.7	T/YR	BASED ON A 12-MONTH ROLLING TOTAL	0		

**Table D-A-9  
Particulate Matter 10 microns(PM) RBLC Search - Combustion Turbines Firing Natural Gas (With Duct Burning)  
Invenery, LLC - Allegheny County Energy Center Project**

RBL CID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
*TX-0730	COLORADO BEND ENERGY CENTER	4/1/2015	Combined-cycle gas turbine electric generating facility	natural gas	1100	MW	combined cycle power plant that uses two combustion turbines and one steam turbine, model GE 7HA.02	efficient combustion, natural gas fuel	43	lb/hr		0			0		
*TX-0751	EAGLE MOUNTAIN STEAM ELECTRIC STATION	6/18/2015	Combined Cycle Turbines (<gt;25 MW) &lt; natural gas	natural gas	210	MW	Two power configuration options authorized Siemens &lt; 231 MW + 500 million British thermal units per hour (MMBtu/hr) duct burner GE &lt; 210 MW + 349.2 MMBtu/hr duct burner		35.47	lb/hr		81.88	T/YR		0		
*TX-0767	LON C. HILL POWER STATION	10/2/2015	Combined Cycle Turbines (&lt;25 MW)	natural gas	195	MW	Two power configuration options authorized Siemens &lt; 240 MW + 250 million British thermal units per hour (MMBtu/hr) duct burner GE &lt; 195 MW + 670 MMBtu/hr duct burner	Good combustion practices and use of pipeline quality natural gas	16	lb/hr		109.5	T/YR		0		
*WY-0070	CHEYENNE PRAIRIE GENERATING STATION	8/28/2012	Combined Cycle Turbine (EP02)	Natural Gas	40	MW		good combustion practices	4	lb/hr	3-HOUR AVERAGE	17.5	T/YR	CALENDAR YEAR	0		
AK-0071	INTERNATIONAL STATION POWER PLANT	12/20/2010	GE LM6000PP-25 Turbines (4)	Natural Gas	59900	hp ISO	Turbine-duct burner pairs exhaust through common stack	Good Combustion Practices	0.0066	LB/MMBTU	3-HOUR AVERAGE	0			0		
AK-0073	INTERNATIONAL STATION POWER PLANT	12/20/2010	Fuel Combustion	Natural Gas	59900	HP	EU IDs 5-8 Combined Cycle Natural Gas-fired Combustion Turbines rated at 59,900 hp (44.7 MW)	Combustion Turbines EU IDs 5-8 use good combustion practices involve increasing the residence time and excess oxygen to ensure complete combustion which in turn minimize particulates without an add-on control technology.	0.0066	LB/MMBTU	3-HOUR	0			0		
CA-1144	BLYTHE ENERGY PROJECT II	4/25/2007	2 COMBUSTION TURBINES	NATURAL GAS	170	MW	EACH TURBINE WILL PRODUCE 170 MW	USE PUBLIC UTILITY COMMISSION QUALITY NATURAL GAS W/ SULFUR CONTENT LESS THAN OR EQUAL TO 0.5 GRAINS PER 100 SCF	6	lb/hr		61	T/YR		0		
CA-1191	VICTORVILLE 2 HYBRID POWER PROJECT	3/11/2010	COMBUSTION TURBINE #2 (NORMAL OPERATION, WITH DUCT BURNING)	NATURAL GAS	154	MW	154 MW Combined Cycle Combustion Turbine Generator	PUC QUALITY NATURAL GAS	18	lb/hr	12-MONTH ROLLING AVG (W/ DUCT BURNING)	0			0		
CA-1192	AVENAL ENERGY PROJECT	6/21/2011	COMBUSTION TURBINE #1 (NORMAL OPERATION, WITH DUCT BURNING)	NATURAL GAS	180	MW		USE PUC QUALITY NATURAL GAS	11.78	lb/hr	12-MONTH ROLLING AVG	0			0		
CA-1198	MORRO BAY POWER PLANT	9/25/2008	COMBUSTION TURBINE GENERATOR	NATURAL GAS	180	MW		USE PIPELINE QUALITY NATURAL GAS, OPERATE DUCT BURNERS NO MORE THAN 4000 HRS PER YEAR (12-MONTH ROLLING AVG BASIS)	11	lb/hr	6-HR ROLLING AVG (NO DUCT BURNING)	13.3	lb/hr	6-HR ROLLING AVG (W/ DUCT BURNING)	0		
CA-1211	COLUSA GENERATING STATION	3/11/2011	COMBUSTION TURBINES (NORMAL OPERATION)	NATURAL GAS	172	MW	TWO (2) NATURAL GAS FIRED TURBINES AT 172 MW EACH. BOTH TURBINES EQUIPPED WITH A 688 MMBTU/HR DUCT BURNER AND HRSG.	USE NATURAL GAS	13.5	lb/hr	STACK TEST	0			0		
CA-1212	PALMDALE HYBRID POWER PROJECT	10/18/2011	COMBUSTION TURBINES (NORMAL OPERATION)	NATURAL GAS	154	MW	TWO NATURAL GAS-FIRED COMBUSTION TURBINE-GENERATORS (CTGS) RATED AT 154 MEGAWATT (MW, GROSS) EACH, TWO HEAT RECOVERY STEAM GENERATORS (HRSG), ONE STEAM TURBINE GENERATOR (STG) RATED AT 267 MW, AND 251 ACRES OF PARABOLIC SOLAR-THERMAL COLLECTORS WITH ASSOCIATED HEAT-TRANSFER EQUIPMENT	USE PUC QUALITY NATURAL GAS	0.0048	LB/MMBTU	9-HR AVG (NO DUCT BURNING)	0.0049	LB/MMBTU	9-HR AVG (W/ DUCT BURNING)	0		
CT-0151	KLEEN ENERGY SYSTEMS, LLC	2/25/2008	SIEMENS SGT6-5000F COMBUSTION TURBINE #1 AND #2 (NATURAL GAS FIRED) WITH 445 MMBTU/HR NATURAL GAS DUCT BURNER	NATURAL GAS	2.1	MMCF/H	THROUGHPUT IS FOR TURBINE ONLY WHEN FIRING NATURAL GAS TURBINE: 2136 MMBTU/HR (2.095 MMCF/HR) DUCT BURNER: 445 MMBTU/HR (0.436 MMCF/HR)	EMISSION RATES ARE FOR EACH COMBUSTION TURBINE FIRING NATURAL GAS, NOT COMBINED.	11	lb/hr	W/OUT DUCT BURNER	15.2	lb/hr	W/ DUCT BURNER	0		
ID-0018	LANGLEY GULCH POWER PLANT	6/25/2010	COMBINED CYCLE W/ DUCT BURNER	NATURAL GAS (ONLY)	2375.28	MMBTU/H	SIEMENS SGT6-5000F COMBUSTION TURBINE (NGCT, CCGT) FOR ELECTRICAL GENERATION, NOMINAL 269 MW AND 2.1466 MMSCF/HR	GOOD COMBUSTION PRACTICES (GCP)	0		SEE NOTE	0			0		
LA-0136	PLAQUEMINE COGENERATION FACILITY	7/23/2008	(4) GAS TURBINES/DUCT BURNERS	NATURAL GAS	2876	MMBTU/H	VISUAL INSPECTION FOR OPACITY ON A WEEKLY BASIS, STACK TESTS FOR PM, NOX, SO2, OPACITY, CO EMISSION POINTS GT-500, -600, -700, -800.	USE OF CLEAN BURNING FUELS USE OF CLEAN BURNING FUEL AND GOOD COMBUSTION PRACTICES	33.5	lb/hr	HOURLY MAXIMUM	139	T/YR	ANNUAL MAXIMUM	0		
LA-0192	CRESCENT CITY POWER	6/6/2005	GAS TURBINES - 187 MW (2)		2006	MMBTU/H		USE OF NATURAL GAS AS FUEL AND GOOD COMBUSTION PRACTICES	29.4	lb/hr	HOURLY MAXIMUM	128.8	T/YR	ANNUAL MAXIMUM	0		NOT AVAILABLE
LA-0254	NINEMILE POINT ELECTRIC GENERATING PLANT	8/16/2011	COMBINED CYCLE TURBINE GENERATORS (UNITS 6A & 6B)	NATURAL GAS	7146	MMBTU/H	TURBINES ALSO PERMITTED TO BURN NO. 2 FUEL OIL AND ULTRA LOW SULFUR DIESEL FUEL OIL USE IS LIMITED TO 1000 HOURS PER YEAR	WHILE FIRING NATURAL GAS: USE OF PIPELINE QUALITY NATURAL GAS AND GOOD COMBUSTION PRACTICES WHILE FIRING FUEL OIL: USE OF ULTRA LOW SULFUR FUEL OIL AND GOOD COMBUSTION PRACTICES	26.23	lb/hr	HOURLY AVERAGE W/O DUCT BURNER	33.16	lb/hr	HOURLY AVERAGE W/ DUCT BURNER	0		
LA-0256	COGENERATION PLANT	12/6/2011	COGENERATION TRAINS 1-3 (1-10, 2-10, 3-10)	NATURAL GAS	475	MMBTU/H	EACH COGEN TRAIN CONSISTS OF A 50 MW GE LM6000 PF SPRINT TURBINE AND A HEAT RECOVERY STEAM GENERATOR EQUIPPED WITH A 70 MM BTU/HR DUCT BURNER.	USE OF NATURAL GAS AS FUEL AND GOOD COMBUSTION PRACTICES	3.72	lb/hr	HOURLY MAXIMUM	0			0		
LA-0257	SABINE PASS LNG TERMINAL	12/6/2011	Combined Cycle Refrigeration Compressor Turbines (8)	natural gas	286	MMBTU/H	GE LM2500-G4	Good combustion practices and fueled by natural gas	2.08	lb/hr	HOURLY MAXIMUM	0			0		
MI-0366	BERRIEN ENERGY, LLC	4/13/2005	3 COMBUSTION TURBINES AND DUCT BURNERS	NATURAL GAS	1584	MMBTU/H	EACH TURBINE IS EQUIPPED WITH A HEAT RECOVERY STEAM GENERATOR (HRSG). EACH HRSG IS EQUIPPED WITH A NATURAL GAS FIRED DUCT BURNER (650 MMBTU/H). TOTAL NOMINAL PLAN GENERATING CAPACITY WITHOUT DUCT FIRING IS 800 MW. A MAX OUTPUT OF 1100 MW THROUGH SUPPLEMENTAL FIRING OF HRSGS.	STATE OF THE ART COMBUSTION TECHNIQUES AND USE OF NATURAL GAS ARE BACT FOR PM10.	19	lb/hr		293.3	T/YR		0		
MIN-0071	FAIRBAULT ENERGY PARK	6/5/2007	COMBINED CYCLE COMBUSTION TURBINE W/DUCT BURNER	NATURAL GAS	1758	MMBTU/H	COMBUSTION TURBINE PERMITTED TO USE NG & NO. 2 OIL; DUCT BURNER PERMITTED TO USE NG & NO. 2 OIL. DUCT BURNER ALSO AUTHORIZED TO COMBUST LIQUID BIOFUEL		0.01	LB/MMBTU	CTG NG OR CTG & DB NG	0.015	LB/MMBTU	CTG NG & DB OIL	0.03	LB/MMBTU	CTG OIL & DB NOT OPERATE OR DB NG OR OIL

**Table D-A-9  
Particulate Matter 10 microns(PM) RBLC Search - Combustion Turbines Firing Natural Gas (With Duct Burning)  
Invenergy, LLC - Allegheny County Energy Center Project**

RBL CID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
NC-0101	FORSYTH ENERGY PLANT	9/29/2005	TURBINE &amp; DUCT BURNER, COMBINED CYCLE, NAT GAS, 3	NATURAL GAS	1844.3	MMBTU/H	Each of these units have a natural gas-fired HRSG & a natural gas-fired duct burner. Limits for this process are for turbines and duct burners.	CLEAN BURNING LOW-SULFUR FUELS AND GOOD COMBUSTION PRACTICES	0.021	LB/MMBTU	3-hr avg	0			0		
NJ-0074	WEST DEPTFORD ENERGY	5/6/2009	TURBINE, COMBINED CYCLE	NATURAL GAS	17298	MMFT3/YR		CLEAN FUELS - NATURAL GAS AND ULTRA LOW SULFUR (15PPM SULFUR) DISTILLATE OIL	18.66	lb/hr		0		0			
NY-0095	CATHINES BELLPORT ENERGY CENTER	5/10/2006	COMBUSTION TURBINE	NATURAL GAS	2221	MMBTU/H	COMBINED CYCLE WITH DUCT FIRING UP TO 494 MMBTU/H	LOW SULFUR FUEL	0.0055	LB/MMBTU	NO DUCT BURNING	0.0066	LB/MMBTU	W/DUCT BURNING	0		
OK-0115	LAWTON ENERGY COGEN FACILITY	12/12/2006	COMBUSTION TURBINE AND DUCT BURNER					GOOD COMBUSTION PRACTICES	0.0067	LB/MMBTU		0		0			
OK-0117	PSO SOUTHWESTERN POWER PLT	2/9/2007	GAS-FIRED TURBINES COMBINED CYCLE COGENERATION	NATURAL GAS				USE OF LOW ASH FUEL (NATURAL GAS) AND EFFICIENT COMBUSTION	0.0093	LB/MMBTU		0		0			
OK-0129	CHOUTEAU POWER PLANT	1/23/2009	842.25MW COMBINED CYCLE NATURAL GAS-FIRED ELECTRIC GENERATING UNIT	NATURAL GAS	1882	MMBTU/H	SIEMENS V84.3A	NATURAL GAS FUEL	6.59	lb/hr	3-H AVG	0.0035	LB/MMBTU	24-H AVG	0		
OR-0048	CARTY PLANT	12/29/2010		NATURAL GAS	2866	MMBTU/H		CLEAN FUEL	2.5	LB/MMCF		0.0083	LB/MMBTU		0		
PA-0278	MOXIE LIBERTY LLC/ASYLUM POWER PL T	10/10/2012	Combined-cycle Turbines (2) - Natural gas fired	Natural Gas	3277	MMBTU/H	Two combine cycle Turbines, each with a combustion turbine and heat recovery steam generator with duct burner. Each combined-cycle process will be rated at 468 MW or less. The heat input rating of each combustion gas turbine is 2890 MMBtu/hr (HHV) or less, and the heat input rating of each supplemental duct burner is equal to 387 MMBtu/hr (HHV) or less.	Using fuel with little or no ash and sulfur content.	0.004	LB/MMBTU	FOR 468 MW POWERBLOCK	0.0057	LB/MMBTU	FOR 454 MW POWERBLOCK	0		
							GREEN POWER ONE WILL CONSIST OF TWO NOMINALLY RATED 35 MW GAS FIRED TURBINES AND TWO HEAT RECOVERY STEAM GENERATORS, EQUIPPED WITH 312 MMBTU/HR DUCT BURNERS. THE COMBUSTION TURBINES WILL ONLY BURN PIPELINE QUALITY SWEET NATURAL GAS. THE DUCT BURNERS WILL BURN NATURAL GAS, COMPLEX GAS OR MIXTURES OF NATURAL GAS AND COMPLEX GAS. STEAM PRODUCED IN THE HRSGS WILL BE USED IN THE CHOCOLATE BAYOU WORKS CHEMICAL COMPLEX. THE CHEMICAL COMPLEX WILL CONSUME APPROXIMATELY HALF OF THE ELECTRICAL OUTPUT PRODUCED BY THE TWO NEW TURBINES. EXCESS POWER PRODUCED BY THE COMBUSTION TURBINES WILL BE SOLD TO THE GRID.										
TX-0497	INEOS CHOCOLATE BAYOU FACILITY	8/29/2006	COGENERATION TRAIN 2 AND 3 (TURBINE AND DUCT BURNER EMISSIONS)	NATURAL GAS	35	MW	THE EMISSIONS ARE PER TRAIN.	THE USE OF PROPER COMBUSTION CONTROL AND FIRING ONLY GASEOUS FUELS CONTAINING NO ASH IS BACT FOR PARTICULATE MATTER FROM THE GAS FIRED TURBINES AND DUCT BURNERS.	10.03	lb/hr		71.32	T/YR	0			
TX-0502	NACOGDOCHES POWER STERNE GENERATING FACILITY	6/5/2006	WESTINGHOUSE/ SIEMENS MODEL SW501F GAS TURBINE W/416.5 MMBTU DUCT BURNERS	NATURAL GAS	190	MW		STEAG POWER LLC REPRESENTS THE FIRING OF PIPELINE NATURAL GAS IN THE COMBUSTION TURBINES AND DUCT FIRED HRSGS AS BACT FOR PM10.	26.9	lb/hr		275.4	T/YR	0			
TX-0590	KING POWER STATION	8/5/2010	Turbine	natural gas	1350	MW	The plant will be designed to generate 1,350 nominal megawatts of power. There are two configuration scenarios: either four Siemens SGT6-5000F CTGs in combined-cycle mode (Scenario A) or four GE Frame 7FA CTGs in combined cycle mode (Scenario B). Scenario B also includes one or two auxiliary boilers.	use of low ash fuel (natural gas or low sulfur diesel as a backup)	11.1	lb/hr		19.8	lb/hr	0			
TX-0618	CHANNEL ENERGY CENTER LLC	10/15/2012	Combined Cycle Turbine	natural gas	180	MW	The turbine is a Siemens 501F rated at a nominal 180 MW and the duct burner will have a maximum design heat input of 475 MMBtu/hr.	good combustion and the use of gaseous fuel	27	lb/hr		0		0			
TX-0619	DEER PARK ENERGY CENTER	9/26/2012	Combined Cycle Turbine	natural gas	180	MW	natural gas-fired combined cycle turbine generator with a heat recovery steam generator equipped with a duct burner. The turbine is a Siemens 501F rated at a nominal 180 megawatts and the DB will have a maximum design rate capability of 725 million British thermal units per hour	good combustion and the use of natural gas	27	lb/hr		0		0			
VA-0315	WARREN COUNTY POWER PLANT - DOMINION	12/17/2010	COMBINED CYCLE TURBINE &amp; DUCT BURNER, 3	Natural Gas	2996	MMBTU/H	Emissions are for one of three units (Mitsubishi natural gas-fired combustion turbine (CT) generator Model M501 GAC).	Natural Gas only, fuel has maximum sulfur content of 0.0003% by weight.	8	lb/hr	3 HR AVG. (WITHOUT DUCT BURNER FIRING)	14	lb/hr	3 HR. AVG. (WITH DUCT BURNER FIRING)	0		
VA-0319	GATEWAY COGENERATION 1, LLC - SMART WATER PROJECT	8/27/2012	COMBUSTION TURBINES (2)	Natural Gas	593	MMBTU/H	Burns primarily natural gas but has the capacity to burn up to 500 hours of ultra low sulfur diesel fuel (ULSD) as backup.	Clean-burning fuels and good combustion practices.	5	lb/hr	3 H AVG	0		0			
*VA-0321	BRUNSWICK COUNTY POWER STATION	3/12/2013	COMBUSTION TURBINE GENERATORS, (3)	Natural Gas	3442	MMBTU/H	Three (3) Mitsubishi M501 GAC combustion turbine generators with HRSG duct burners (natural gas-fired).	Low sulfur/carbon fuel and good combustion practices.	0.0047	LB/MMBTU	3 H AVG/WITH DUCT BURNING	9.7	lb/hr	3 H AVG/WITHOUT DUCT BURNING	16.3	3 H AVG WITH DUCT BURNING	
WA-0328	BP CHERRY POINT COGENERATION PROJECT	1/11/2005	GE 7FA COMBUSTION TURBINE &amp; HEAT RECOVERY STEAM GENERATOR	NATURAL GAS	174	MW	THREE IDENTICAL CT & HRSG UNITS. EACH CT WILL HAVE AN ANNUAL AVERAGE CAPACITY RATING OF 1614 MMBTU/HR. EACH HRSG DUCT BURNER WILL HAVE A MAXIMUM FIRING RATE OF 105 MMBTU/HR.	LIMIT FUEL TYPE TO NATURAL GAS	17	lb/hr		0		0			*SEE NOTES
	Astoria Energy LLC		Combustion Turbine	Natural Gas	1000	MW		Clean Fuel	0.0098	lb/MMBtu	1-hr average; Duct Burners On	18	lb/hr	1-hr average; Duct Burners On			
	Catoctin Power LLC		Combustion Turbine	Natural Gas	170	MW		Pipeline quality low sulfur NG; DLN combustion design	21.1	lb/hr	3-hr average						
	Pioneer Valley Energy Center		Combustion Turbine	Natural Gas	2542	MMBTU/hr			0.004	lb/MMBtu		9.8	lb/hr				
	Russell City Energy Company, LLC		Combustion Turbine	Natural Gas	2038.6	MMBTU/hr			7.5	lb/hr		0.0036	lb/MMBtu				
	Tenaska Partners LLC		Combustion Turbine	Natural Gas	3147	MMBTU/hr			11.8	lb/hr		0.0039	lb/MMBtu				
	UGI Development Co/ Hunlock Creek			Natural Gas	471.2	MMBTU/hr			0.0141	lb/MMBtu							
	Hawkeys Generating, LLC			Natural Gas	615	MW			0.0111	lb/MMBtu		211.86	T/YR				
	Hawkeys Generating, LLC			Natural Gas	615	MW			0.011	lb/MMBtu		211.86	T/YR				
	Huntington Beach Energy Project			Natural Gas	939	MW (net)			4.5	lb/hr							
	Huntington Beach Energy Project			Natural Gas	939	MW (net)			9.5	lb/hr							
	Hess Newark Energy Center		Combustion Turbine	Natural Gas	2320	MMBTU/hr			11	lb/hr							
	Hess Newark Energy Center		Combustion Turbine	Natural Gas	2266	MMBTU/hr			13.2	lb/hr							
	York Energy Center Block 1				1574	MMBTU/hr			0.0141	lb/MMBtu	hourly basis						
	Liberty Electric Power, LLC				1954	MMBTU/hr			0.0141	lb/MMBtu							
	Footprint Power Salem Harbor Development LP		Combustion Turbine	Natural Gas	346	MW		Clean Fuel	13	lb/hr	1-hr average; Duct Burners On	0.0062	lb/MMBtu	1-hr average; Duct Burners On			



**Table D-A-9**  
**Particulate Matter 10 microns(PM) RBLC Search - Combustion Turbines Firing Natural Gas (With Duct Burning)**  
**Invenergy, LLC - Allegheny County Energy Center Project**

RBL CID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
	Footprint Power Salem Harbor Development LP		Combustion Turbine	Natural Gas	346	MW		Clean Fuel	0.041	LB/MW-hr	1-hr average, Duct Burners On						
	Kalama Energy Center		Combustion Turbine	Natural Gas	2247	MMBtu/hr			17.1	lb/hr	3-hr average	0.0068	lb/MMBtu	3-hr average			
	Kalama Energy Center		Combustion Turbine	Natural Gas	2247	MMBtu/hr			70	T/YR	12-mo rolling						
	GenCom Middletown LLC		Combustion Turbine	Natural Gas	474.9	MMBtu/hr			6	lb/hr							
	PacifiCorp Energy		Block 1 CT	Natural Gas					10.8	lb/hr	30-day rolling average						
	PacifiCorp Energy		Block 2 CT	Natural Gas	629	MW			14	lb/hr	30-day rolling average						
	Sevier Power Company Power Plant		Combustion Turbine	Natural Gas	580	MW			14	lb/hr	30-day rolling average						
	WARREN COUNTY POWER PLANT - DOMINION		COMBINED CYCLE TURBINE &amp; DUCT BURNER, 3	Natural Gas	2996	MMBTU/H	Emissions are for one of three units (Mitsubishi natural gas-fired combustion turbine (CT) generator, Model MS01 GAC).	Oxidation catalyst and good combustion practices.	21.2	lb/hr	(WITH DUCT BURNER FIRING)	0.0061	lb/MMBtu				
	Woodbridge Energy Center (CPV Shore, LLC)			Natural Gas	2807	MMBtu/hr			19.1	lb/hr							
	Woodbridge Energy Center (CPV Shore, LLC)			Natural Gas	2307	MMBtu/hr			12.1	lb/hr							
	Hummel Station LLC		Combustion Turbine	Natural Gas	2254	MMBtu/hr			17.3	lb/hr							
	Gibson County Generation, LLC		Combustion Turbine	Natural Gas	417	MW						0.0088	lb/MMBtu	24-hr average			
	York Energy Center Block 2	6/15/2015			2512.5	MMBtu/hr	firing NG with duct burner		18.4	lb/hr	average of 3 test runs						
	Crocket Valley Energy Center		Combustion Turbine	Natural Gas	1000	MW			191.9	T/YR							
	Appalachia/Petrochemicals Complex	6/18/2015			664	MMBtu/hr	each of the combustion turbines with duct burners		0.0066	lb/MMBtu	combustion turbines with duct burners						

**Table D-A-10**  
**Particulate Matter 10 microns(PM) RBLC Search - Combustion Turbines Firing Natural Gas (Without Duct Burning)**  
**Invenergy, LLC - Allegheny County Energy Center Project**

RBL CID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
CT-0161	KILLINGLY ENERGY CENTER	6/30/2017	Natural Gas w/o Duct Firing	Natural Gas	2969	MMBtu/hr	Throughput is for turbine only	Good Combustion	0.044	LB/MMBTU		0			0		
FL-0356	OKEECHOBEE CLEAN ENERGY CENTER	3/9/2016	Combined-cycle electric generating unit	Natural gas	3096	MMBtu/hr per turbine	3-on-1 combined cycle unit. GE JHA.82 turbines, approximately 350 MW per turbine. Total unit generating capacity is approximately 1,600 MW. Primarily fueled with natural gas. Permitted to burn the base-load equivalent of 500 hr/yr per turbine on ULSD.	Use of clean fuels		GR. S/100 SCF GAS	FOR NATURAL GAS	0.0015	% S IN ULSD	FOR ULSD	0		
*FL-0363	DANIA BEACH ENERGY CENTER	12/4/2017	2-on-1 combined cycle unit (GE JHA EUCC1 (Combined cycle CTG with unfired HRSG)	Natural gas	4000	MMBtu/hr	Two nominal 430 MW combustion turbines, coupled to a steam turbine generator	Clean fuels	0			0			0		
MI-0427	FILER CITY STATION	11/17/2017	FGCTGHRSG (EUCTGHRSG-1 &amp; EUCTGHRSG2)	Natural gas	1934.7	MMBTU/H	A 1,934.7 MMBTU/H natural gas fired heavy frame industrial combustion turbine. The turbine operates in combined-cycle with an unfired heat recovery steam generator (HRSG). Two (2) combined-cycle natural gas-fired combustion turbine generators, each with a heat recovery steam generator (CTGHRSG).	Good combustion practices and the use of pipeline quality natural gas, combustion inlet air filter.	0.0066	LB/MMBTU		0			0		
*MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	FGCTGHRSG (EUCTGHRSG-1 &amp; EUCTGHRSG2)	Natural gas	0		Plant nominal 1,150 MW electricity production. Turbines are each rated at 3,658 MMBTU/H and HRSG duct burners are each rated at 800 MMBTU/H. The HRSGs are not capable of operating independently from the CTGs.	Good combustion practices, inlet air conditioning, and the use of pipeline quality natural gas.	16	LB/H	HOURLY; EACH UNIT	12.2	LB/H	HOURLY; EACH UNIT W/O DUCT BURNER FIRING	0		
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	Combined Cycle Combustion Turbine firing Natural Gas without Duct Burner	Natural Gas	8040	H/HR		USE OF NATURAL GAS A CLEAN BURNING FUEL	11.7	LB/H	AV OF THREE ONE H STACK TESTS EVERY 5 YR	0			0		
*PA-0310	CPV FAIRVIEW ENERGY CENTER	9/2/2016	Combustion turbine and HRSG without duct burner NG only	Natural gas	0		Emission limits are for each turbine fueled by NG and operating without duct burner being fired and do not include startup/shutdown emissions.	Low sulfur fuels and good combustion practices	0.0068	LB/MMBTU		0			0		
TX-0788	NECHES STATION	3/24/2016	Combined Cycle &amp; Cogeneration	natural gas	231	MW	2 CTGs to operate in simple cycle & combined cycle modes. 231 MW (Siemens) or 210 MW (GE). Simple cycle operations limited to 2,500 hr/yr.	GOOD COMBUSTION PRACTICES, LOW SULFUR FUEL	19.35	LB/H		0			0		
TX-0789	DECORDOVA STEAM ELECTRIC STATION	3/8/2016	Combined Cycle &amp; Cogeneration	natural gas	231	MW	2 CTGs to operate in simple cycle & combined cycle modes. 231 MW (Siemens) or 210 MW (GE). Simple cycle operations limited to 2,500 hr/yr.	GOOD COMBUSTION PRACTICES AND LOW SULFUR FUEL	35.47	LB/H		0			0		
TX-0790	PORT ARTHUR LNG EXPORT TERMINAL	2/17/2016	Refrigeration Compression Turbines	natural gas	10	M TONNES/YR	Four GE Frame 7E gas turbines for refrigeration and compression at the site	Equipment specifications & work practices -	11.07	LB/H		42.15	T/YR		0		
TX-0790	PORT ARTHUR LNG EXPORT TERMINAL CHOCOLATE BAYOU STEAM GENERATING (CBSG) STATION	2/17/2016	Simple Cycle Electrical Generation Gas Turbines 15,210	natural gas	34	MW	Nine GE PG125+G4 gas turbines for electrical generation at the site at 34 MW/turbine	Good combustion practices and use of low carbon, low sulfur fuel	2.32	LB/H		8.84	T/YR		0		
TX-0817	MONTGOMERY COUNTY POWER STATION	2/17/2017	Combined Cycle Cogeneration	NATURAL GAS	50	MW	2 UNITS EACH 50 MW GE LM6000		6.98	LB/H		0			0		
*TX-0834	MONTGOMERY COUNTY POWER STATION	3/30/2018	Combined Cycle Turbine	NATURAL GAS	2635	MMBTU/HR/UNIT	Two Mitsubishi M501GAC turbines (without fast start)	PIPELINE NATURAL GAS, GOOD COMBUSTION	125.7	TON/YR		0			0		
*VA-0325	GREENSVILLE POWER STATION	6/17/2016	COMBUSTION TURBINE GENERATOR WITH DUCT-FIRED HEAT RECOVERY STEAM GENERATORS (3)	natural gas	3227	MMBTU/HR	3227 MMBTU/HR CT with 500 MMBTU/HR Duct Burner, 3 on 1 configuration.	Low sulfur/carbon fuel and good combustion practices	0.0039	LB/MMBTU	AVG OF 3 TEST RUNS	0			0		
AK-0071	INTERNATIONAL STATION POWER PLANT	12/20/2010	GE LM6000PF-25 Turbines (4)	Natural Gas	59900	hp ISO	Turbine-duct burner pairs exhaust through common stack	Good Combustion Practices	0.0066	LB/MMBTU	3-HOUR AVERAGE	0			0		
AK-0073	INTERNATIONAL STATION POWER PLANT	12/20/2010	Fuel Combustion	Natural Gas	59900	HP	EU IDs 5-8 Combined Cycle Natural Gas-fired Combustion Turbines rated at 59,900 hp (44.7 MW)	Combustion Turbines EU IDs 5-8 use good combustion practices involve increasing the residence time and excess oxygen to ensure complete combustion which in turn minimize particulates without an add-on control technology.	0.0066	LB/MMBTU	3-HOUR	0			0		
CA-1144	BLYTE ENERGY PROJECT II	4/25/2007	2 COMBUSTION TURBINES	NATURAL GAS	170	MW	EACH TURBINE WILL PRODUCE 170 MW	USE PUBLIC UTILITY COMMISSION QUALITY NATURAL GAS W/ SULFUR CONTENT LESS THAN OR EQUAL TO 0.5 GRAINS PER 100 SCF	6	lb/hr		61	T/YR		0		
CA-1192	AVENAL ENERGY PROJECT	6/21/2011	COMBUSTION TURBINE #1 (NORMAL OPERATION, NO DUCT BURNING)	NATURAL GAS	180	MW		USE PUC QUALITY NATURAL GAS	8.91	lb/hr	12-MONTH ROLLING AVG	0			0		
CA-1198	MORRO BAY POWER PLANT	9/25/2008	COMBUSTION TURBINE GENERATOR	NATURAL GAS	180	MW		USE PIPELINE QUALITY NATURAL GAS, OPERATE DUCT BURNERS NO MORE THAN 4000 HRS PER YEAR (12-MONTH ROLLING AVG BASIS)	11	lb/hr	6-HR ROLLING AVG (NO DUCT BURNING)	13.3	lb/hr	6-HR ROLLING AVG (W/ DUCT BURNING)	0		
CA-1211	COLUSA GENERATING STATION	3/11/2011	COMBUSTION TURBINES (NORMAL OPERATION)	NATURAL GAS	172	MW	TWO (2) NATURAL GAS FIRED TURBINES AT 172 MW EACH. BOTH TURBINES EQUIPPED WITH A 688 MMBTU/HR DUCT BURNER AND HRSG.	USE NATURAL GAS	13.5	lb/hr	STACK TEST	0			0		
CA-1212	PALMDALE HYBRID POWER PROJECT	10/18/2011	COMBUSTION TURBINES (NORMAL OPERATION) NATURAL-GAS FIRED.	NATURAL GAS	154	MW	TWO NATURAL GAS FIRED TURBINE-GENERATORS (CTGS) RATED AT 154 MEGAWATT (MW, GROSS) EACH, TWO HEAT RECOVERY STEAM GENERATORS (HRSG), ONE STEAM TURBINE GENERATOR (STG) RATED AT 267 MW, AND 251 ACRES OF PARABOLIC SOLAR-THERMAL COLLECTORS WITH ASSOCIATED HEAT-TRANSFER EQUIPMENT	USE PUC QUALITY NATURAL GAS	0.0048	LB/MMBTU	9-HR AVG (NO DUCT BURNING)	0.0049	LB/MMBTU	9-HR AVG (W/ DUCT BURNING)	0		
CO-0056	ROCKY MOUNTAIN ENERGY CENTER, LLC	5/2/2006	COMBINED-CYCLE TURBINE	NATURAL GAS	300	MW	ONE NEW COMBINED-CYCLE TURBINE IS BEING ADDED TO AN EXISTING FACILITY.	NATURAL GAS QUALITY FUEL ONLY AND GOOD COMBUSTION CONTROL PRACTICES.	0.0074	LB/MMBTU		10	% OPACITY		0		
*CO-0073	PUEBLO AIRPORT GENERATING STATION	7/22/2010	Four combined cycle combustion turbines	natural gas	373	mmbtu/hr	Three GE, LMS6000 PF, natural gas-fired, combined cycle CTG, rated at 373 MMBtu per hour each, based on HHV and one (1) HRSG each with no Duct Burners	Use of pipeline quality natural gas and good combustor design	4.3	lb/hr	AVE OVER STACK TEST LENGTH	0			0		

**Table D-A-10**  
**Particulate Matter 10 microns(PM) RBLC Search - Combustion Turbines Firing Natural Gas (Without Duct Burning)**  
**Invenenergy, LLC - Allegheny County Energy Center Project**

RBL CID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
CT-0151	KLEEN ENERGY SYSTEMS, LLC	2/25/2008	SIEMENS SGT6-5000F COMBUSTION TURBINE #1 AND #2 (NATURAL GAS FIRED) WITH 445 MMBTU/HR NATURAL GAS DUCT BURNER	NATURAL GAS	2.1	MMCF/H	THROUGHPUT IS FOR TURBINE ONLY WHEN FIRING NATURAL GAS  TURBINE: 2136 MMBTU/HR (2.095 MMCF/HR) DUCT BURNER: 445 MMBTU/HR (0.436 MMCF/HR)  EMISSION RATES ARE FOR EACH COMBUSTION TURBINE FIRING NATURAL GAS, NOT COMBINED.		11	lb/hr	W/OUT DUCT BURNER	15.2	lb/hr	W/ DUCT BURNER	0		
FL-0265	HINES POWER BLOCK 4	6/8/2005	COMBINED CYCLE TURBINE	NATURAL GAS	530	MW		CLEAN FUELS	10	% OPACITY	6 MM BLOCK AVERAGE	0			10	% OPACITY	
ID-0018	LANGLEY GULCH POWER PLANT	6/25/2010	COMBUSTION TURBINE, COMBINED CYCLE W/ DUCT BURNER	NATURAL GAS (ONLY)	2375.28	MMBTU/H	SIEMENS SGT6-5000F COMBUSTION TURBINE (NGCT, CCGT) FOR ELECTRICAL GENERATION; NOMINAL 269 MW AND 2.1466 MMSCFH	GOOD COMBUSTION PRACTICES (GCP)	0		SEE NOTE	0			0		
*IL-0112	NELSON ENERGY CENTER	12/28/2010	Electric Generation Facility	Natural Gas	220	MW each	Two combined cycle combustion turbines followed by HRSGs with capability for supplemental fuel firing in HRSG for each combustion turbine using duct burners.		0.012	LB/MMBTU	HOURLY AVERAGE	0			0		
*IN-0158	ST. JOSEPH ENRGY CENTER, LLC	12/3/2012	FOUR (4) NATURAL GAS COMBINED CYCLE COMBUSTION TURBINES	NATURAL GAS	2300	MMBTU/H	EACH TURBINE IS EQUIPPED WITH DRY LOW NOX BURNERS, NATURAL GAS FIRED DUCT BURNERS, AND A HEAT RECOVERY STEAM GENERATOR IDENTIFIED AS HRSG#. NOX EMISSIONS CONTROLLED BY SELECTIVE CATALYTIC REDUCTION SYSTEMS (SCR#) ALONG WITH CO AND VOC EMISSIONS CONTROLLED BY OXIDATION CATALYST SYSTEMS (CAT#) IN EACH TURBINE. EACH STACK HAS CONTINUOUS EMISSIONS MONITORS FOR NOX AND CO. COMBINED NOMINAL POWER OUTPUT IS 1,350 MW.	GOOD COMBUSTION PRACTICE AND FUEL SPECIFICATION	18	lb/hr	3 HOURS	0.0078	LB/MMBTU	3 HOURS	0		
LA-0136	PLAQUEMINE COGENERATION FACILITY	7/23/2008	(4) GAS TURBINES/DUCT BURNERS	NATURAL GAS	2876	MMBTU/H	VISUAL INSPECTION FOR OPACITY ON A WEEKLY BASIS, STACK TESTS FOR PM, NOX, SO2, OPACITY, CO	EMISSION POINTS GT-500, -600, -700, -800.	33.5	lb/hr	HOURLY MAXIMUM	139	T/YR	ANNUAL MAXIMUM	0		
LA-0192	CRESCENT CITY POWER	6/6/2005	GAS TURBINES - 187 MW (2)		2006	MMBTU/H		USE OF CLEAN BURNING FUELS	29.4	lb/hr	HOURLY MAXIMUM	128.8	T/YR	ANNUAL MAXIMUM	0		NOT AVAILABLE
LA-0254	NINEMILE POINT ELECTRIC GENERATING PLANT	8/16/2011	COMBINED CYCLE TURBINE GENERATORS (UNITS 6A &amp; 6B)	NATURAL GAS	7146	MMBTU/H	Four GE 7FA combined cycle turbines, dry low NOx burners and selective catalytic reduction. These limits are for each of the 4 turbines individually, while operating with the duct burners on. This permit is a modification to RBLC OH-4252 to remove hourly restrictions on duct burners.	WHILE FIRING NATURAL GAS: USE OF PIPELINE QUALITY NATURAL GAS AND GOOD COMBUSTION PRACTICES	26.23	lb/hr	HOURLY AVERAGE W/O DUCT BURNER	33.16	lb/hr	HOURLY AVERAGE W/ DUCT BURNER	0		
LA-0256	COGENERATION PLANT	12/6/2011	COGENERATION TRAINS 1-3 (1-10, 2-10, 3-10)	NATURAL GAS	475	MMBTU/H	EACH COGEN TRAIN CONSISTS OF A 50 MW GE LM6000 PF SPRINT TURBINE AND A HEAT RECOVERY STEAM GENERATOR EQUIPPED WITH A 70 MM BTU/HR DUCT BURNER.	USE OF NATURAL GAS AS FUEL AND GOOD COMBUSTION PRACTICES	3.72	lb/hr	HOURLY MAXIMUM	0			0		
*MD-0041	CPV ST. CHARLES	4/23/2014	2 COMBINED-CYCLE COMBUSTION TURBINES	NATURAL GAS	725	MEGAWATT	TWO GENERAL ELECTRIC (GE) F-CLASS ADVANCED COMBINED CYCLE COMBUSTION TURBINES (CTS) WITH A NOMINAL GENERATING CAPACITY OF 725 MW, COUPLED WITH A HEAT RECOVERY STEAM GENERATOR (HRSG) EQUIPPED WITH DUCT BURNERS, DRY LOW-NOX BURNERS, SCR, OXIDATION CATALYST	USE OF PIPELINE-QUALITY NATURAL GAS EXCLUSIVELY AND GOOD COMBUSTION PRACTICE	0.011	LB/MMBTU	AVERAGE OF THREE STACK TEST RUNS	0			0		
*MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014	2 COMBINED CYCLE COMBUSTION TURBINES, WITHOUT DUCT FIRING	NATURAL GAS	270	MW		EXCLUSIVE USE OF PIPELINE QUALITY NATURAL GAS AND EFFICIENT TURBINE DESIGN	25.1	lb/hr	AVERAGE OF 3 STACK TEST RUNS	0			0		
*MI-0402	SUMPTER POWER PLANT	11/17/2011	Combined cycle combustion turbine w/ HRSG	Natural gas	130	MW electrical output	This is a combined-cycle combustion turbine with a non-fired heat recovery steam generator (HRSG).  Natural gas-fired combustion turbine conversion to combined-cycle. Throughput is 2,237 MMBTU/H for each CTG		0.0066	LB/MMBTU	TEST	7.4	lb/hr	TEST	0		
*MI-0405	MIDLAND COGENERATION VENTURE	4/23/2013	Natural gas fueled combined cycle combustion turbine generators (CTG) with HRSG	Natural gas	2237	MMBTU/H	Equipment is permitted as following flexible group (FG): FG-CTG1-2: Two natural gas fired CTGs with each turbine containing a heat recovery steam generator (HRSG) to operate in combined cycle. The two CTGs (with HRSG) are connected to one steam turbine generator. Each CTG is equipped with a dry low NOx (DLN) burner and a selective catalytic reduction (SCR) system. Natural gas fired CTG with DB for HRSG; a total.	Good combustion practices	0.006	LB/MMBTU	EACH CTG, TEST PROTOCOL	0.012	LB/MMBTU	EACH CTG, TEST PROTOCOL	0		
*MI-0410	THETFORD GENERATING STATION	7/25/2013	FGCCA or FGCCB-4 nat. gas fired CTG w/ DB for HRSG	natural gas	2587	MMBTU/H heat input, each CTG	Technology A (4 total) is 2587 MMBTU/H design heat input each CTG.  Technology B (4 total) is 2688 MMBTU/H design heat input each CTG.  Permit was issued for either of two F Class turbine technologies with slight variations in emission rates. Applicant will select one technology. Installation is two separate CTG/HRSG trains driving one steam turbine electrical generator; Two 2X1 Blocks. Each CTG will be rated at 211 to 230 MW (gross) output and the station nominal generating capacity will be up to 1,400 MW.	Combustion air filters; efficient combustion control; low sulfur natural gas fuel.	0.0066	LB/MMBTU	TEST PROTOCOL (3 1-H TESTS IF POSSIBLE)	0			0		
*MI-0412	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	12/4/2013	FG-CTGHRSG: 2 Combined cycle CTGs with HRSGs with duct burners	natural gas	647	MMBTU/H for each CTG/HRSG	This process is identified in the permit as FGCTGHRSG; it is 2 combined cycle natural gas-fired combustion turbine generators (CTGs) with Heat Recovery Steam Generators (HRSGs) equipped with duct burners for supplemental firing (EUCTGHRSG1 & EUCTGHRSG2 in FGCTGHRSG). The total hours for both units combined for startup and shutdown shall not exceed 635 hours per 12-month rolling time period. Each CTG/HRSG shall not exceed 647 MMBtu/hr on a fuel heat input basis.	Good combustion practices and the use of pipeline quality natural gas.	0.014	LB/MMBTU	TEST PROTOCOL	0			0		
NC-0101	FORSYTH ENERGY PLANT	9/29/2005	TURBINE, COMBINED CYCLE NATURAL GAS, (3)	NATURAL GAS	1844.3	MMBTU/H	Each of these units have a natural gas-fired heat recovery steam generator and a natural gas-fired duct burner. Each CT combusts natural gas as the primary fuel and very low-sulfur No. 2 fuel oil as a backup fuel. The use of fuel oil is limited to 1,200 hours per year and only during the months of November through March, and is listed as a separate process. These units are listed as a combined source (all three units) for each type of fuel.	USE OF ONLY CLEAN-BURNING LOW-SULFUR FUELS AND GOOD COMBUSTION PRACTICES.	0.019	LB/MMBTU	based on 3-hour average	0			0		
NJ-0074	WEST DEPTFORD ENERGY	5/6/2009	TURBINE, COMBINED CYCLE	NATURAL GAS	17298	MMFT3/YR		CLEAN FUELS - NATURAL GAS AND ULTRA LOW SULFUR (15PPM SULFUR) DISTILLATE OIL	18.66	lb/hr		0			0		
*NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	Combined Cycle Combustion Turbine (Siemens turbine without Duct Burner)	Natural gas	33691	MMcubic ft/yr	Natural Gas Usage == 33,691 MMcf/3yr per 365 consecutive day period, rolling one day basis (per two turbines and two duct burners)  The heat input rate of each Siemens combustion turbine will be 2,356 MMBtu/hr(HHV)	USE OF NATURAL GAS A CLEAN BURNING FUEL	13	lb/hr	AVERAGE OF THREE ONE HOUR TESTS	0			0		

**Table D-A-10**  
**Particulate Matter 10 microns(PM) RBLC Search - Combustion Turbines Firing Natural Gas (Without Duct Burning)**  
**Invenery, LLC - Allegheny County Energy Center Project**

RBL CID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
*NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITHOUT DUCT BURNER - GENERAL ELECTRIC	Natural Gas	33691	MMCF/YR	Natural Gas Usage => 33,691 MMH <sup>3</sup> /yr per 365 consecutive day period, rolling one day basis (per two turbines and two duct burners) The heat input rate of each General Electric combustion turbine will be 2,312 MMBtu/hr(HHV) This is a 427 MW Siemens Combined Cycle Turbine with duct burner Heat Input rate of the turbine = 2276 MMBtu/hr (HHV) Heat Input rate of the Duct burner= 777 MMBtu/hr(HHV)	Use of Natural Gas as a clean burning fuel	12.7	lb/hr	AVERAGE OF THREE ONE HOUR TESTS	0			0		
*NJ-0082	WEST DEPTFORD ENERGY STATION	7/18/2014	Combined Cycle Combustion Turbine without Duct Burner	Natural Gas	20282	MMCF/YR	The fuel use of 20,282 MMCF/YR is for three turbines and three Duct burner.	Use of natural gas as a clean burning fuel	10	lb/hr	AVERAGE OF THREE ONE HOUR STACK TESTS	0			0		
NY-0095	CATTINES BELLPORT ENERGY CENTER	5/10/2006	COMBUSTION TURBINE	NATURAL GAS	2221	MMBTU/H	COMBINED CYCLE WITH DUCT FIRING UP TO 494 MMBTU/H Two Mitsubishi 2932 MMBtu/H combined cycle combustion turbines, both with 300 MMBtu/H duct burners, with dry low NOx combustors, SCR, and catalytic oxidizer. Will install either 2 Siemens or 2 Mitsubishi, not both (not determined). Short term limits are different with and without duct burners.	LOW SULFUR FUEL	0.0055	LB/MMBTU	NO DUCT BURNING	0.0066	LB/MMBTU	W/DUCT BURNING	0		
*OH-0352	OREGON CLEAN ENERGY CENTER	6/18/2013	2 Combined Cycle Combustion Turbines-Siemens, without duct burners	Natural Gas	515600	MMSCF/rolling 12-months	Two Mitsubishi 2932 MMBtu/H combined cycle combustion turbines, both with 300 MMBtu/H duct burners, with dry low NOx combustors, SCR, and catalytic oxidizer. Will install either 2 Siemens or 2 Mitsubishi, not both (not determined). Short term limits are different with and without duct burners.	clean burning fuel, only natural gas	13.3	lb/hr		61.3	T/YR	PER ROLLING 12 MONTHS	0		
*OH-0352	OREGON CLEAN ENERGY CENTER	6/18/2013	2 Combined Cycle Combustion Turbines-Mitsubishi, without duct burners	Natural Gas	47917	MMSCF/rolling 12-MO	Two Mitsubishi 2932 MMBtu/H combined cycle combustion turbines, both with 300 MMBtu/H duct burners, with dry low NOx combustors, SCR, and catalytic oxidizer. Will install either 2 Siemens or 2 Mitsubishi, not both (not determined). Short term limits are different with and without duct burners.	clean burning fuel, only natural gas	11.3	lb/hr		44.2	T/YR	PER ROLLING 12 MONTHS	0		
*OH-0356	DUKE ENERGY HANGING ROCK ENERGY	12/18/2012	Turbines (4) (model GE 7FA) Duct Burners Off	NATURAL GAS	172	MW	Four GE 7FA combined cycle turbines, dry low NOx burners and selective catalytic reduction. These limits are for each of the 4 turbines individually, while operating with the duct burners off. This permit is a modification to RBL-C OH-0252 to remove hourly restrictions on duct burners.	Burning natural gas in an efficient combustion turbine	15	lb/hr		87.2	T/YR	PER ROLLING 12 MONTHS	0		
OK-0117	PSO SOUTHWESTERN POWER PLT	2/9/2007	GAS-FIRED TURBINES					USE OF LOW ASH FUEL (NATURAL GAS) AND EFFICIENT COMBUSTION	0.0093	LB/MMBTU		0				0	
OK-0129	CHOUTEAU POWER PLANT	1/23/2009	COMBINED CYCLE COGENERATION &gt;25MW	NATURAL GAS	1882	MMBTU/H	SIEMENS V84.3A	NATURAL GAS FUEL	6.59	lb/hr	3-H AVG	0.0035	LB/MMBTU	24-H AVG	0		
OR-0048	CARTY PLANT	12/29/2010	COMBINED CYCLE NATURAL GAS-FIRED ELECTRIC GENERATING UNIT	NATURAL GAS	2866	MMBTU/H		CLEAN FUEL	2.5	LB/MMCF		0.0083	LB/MMBTU		0		
*PA-0286	MOXIE ENERGY LLC/PATRIOT GENERATION PLT	1/31/2013	Combined Cycle Power Blocks 472 MW -(2)	Natural Gas	0		Two natural-gas-fired combined cycle powerblocks where each powerblock consists of a combustion turbine and heat recovery steam generator with duct burner.		0.0057	LB/MMBTU		54	T/YR	TOTAL PM	0		
*PA-0296	BERKS HOLLOW ENERGY ASSOC LLC/ONTELAUNEE	12/17/2013	Turbine, Combined Cycle, #1 and #2	Natural Gas	3046	MMBTU/hr	Equipped with SCR and Oxidation Catalyst The plant will be designed to generate 1,350 nominal megawatts of power. There are two configuration scenarios: either four Siemens SGT6-5000F CTGs in combined-cycle mode (Scenario A) or four GE Frame 7FA CTGs in combined cycle mode (Scenario B). Scenario B also includes one or two auxiliary boilers. The turbine is a Siemens 501F rated at a nominal 180 MW and the duct burner will have a maximum design heat input of 475 MMBtu/hr. natural gas-fired combined cycle turbine generator with a heat recovery steam generator equipped with a duct burner. The turbine is a Siemens 501F rated at a nominal 180 megawatts and the DB will have a maximum design rate capability of 725 million British thermal units per hour	use of low ash fuel (natural gas or low sulfur diesel as a backup) good combustion and the use of gaseous fuel	48.56	T/YR	12-MONTH ROLLING TOTAL	10	lb/hr		0		
TX-0590	KING POWER STATION	8/5/2010	Turbine	natural gas	1350	MW		use of low ash fuel (natural gas or low sulfur diesel as a backup)	11.1	lb/hr		19.8	lb/hr		0		
TX-0618	CHANNEL ENERGY CENTER LLC	10/15/2012	Combined Cycle Turbine	natural gas	180	MW		good combustion and the use of gaseous fuel	27	lb/hr		0			0		
TX-0619	DEER PARK ENERGY CENTER	9/26/2012	Combined Cycle Turbine	natural gas	180	MW		good combustion and the use of natural gas	27	lb/hr		0			0		
TX-0620	ES JOSLIN POWER PLANT	9/12/2012	Combined cycle gas turbine	natural gas	195	MW	The three combustion turbine generators (CTG) will be the General Electric 7FA, each with a maximum base-load electric power output of approximately 195 megawatts (MW). The steam turbine is rated at approximately 235 MW. This project also includes the installation of two emergency generators, one fire water pump, and auxiliary equipment. No duct burners.	good combustion and natural gas as fuel	18	lb/hr	PER TURBINE	0			0		
*TX-0730	COLORADO BEND ENERGY CENTER	4/1/2015	Combined-cycle gas turbine electric generating facility	natural gas	1100	MW	combined cycle power plant that uses two combustion turbines and one steam turbine, model GE 7HA.02	efficient combustion, natural gas fuel	43	lb/hr		0			0		
*TX-0751	EAGLE MOUNTAIN STEAM ELECTRIC STATION	6/18/2015	Combined Cycle Turbines (&gt;25 MW) &lt;= natural gas	natural gas	210	MW	Two power configuration options authorized Siemens &lt;= 231 MW + 500 million British thermal units per hour (MMBTU/hr) duct burner GE &lt;= 210 MW + 349.2 MMBtu/hr duct burner		35.47	lb/hr		81.88	T/YR		0		
*TX-0767	LON C. HILL POWER STATION	10/2/2015	Combined Cycle Turbines (&gt;25 MW)	natural gas	195	MW	Two power configuration options authorized Siemens &lt;= 240 MW + 250 million British thermal units per hour (MMBTU/hr) duct burner GE &lt;= 195 MW + 670 MMBtu/hr duct burner	Good combustion practices and use of pipeline quality natural gas	16	lb/hr		109.5	T/YR		0		
VA-0315	WARREN COUNTY POWER PLANT - DOMINION	12/17/2010	COMBINED CYCLE TURBINE &amp; DUCT BURNER, 3	Natural Gas	2996	MMBTU/H	Emissions are for one of three units (Mitsubishi natural gas-fired combustion turbine (CT) generator, Model M501 GAC).	Natural Gas only, fuel has maximum sulfur content of 0.0003% by weight.	8	lb/hr	3 HR. AVG. (WITHOUT DUCT BURNER FIRING)		14	lb/hr	3 HR. AVG. (WITH DUCT BURNER FIRING)	0	
VA-0319	GATEWAY COGENERATION 1, LLC - SMART WATER PROJECT	8/27/2012	COMBUSTION TURBINES, (2)	Natural Gas	593	MMBTU/H	Burns primarily natural gas but has the capacity to burn up to 500 hours of ultra low sulfur diesel fuel (ULSD) as backup.	Clean-burning fuels and good combustion practices.	5	lb/hr	3 H AVG	0				0	
*VA-0321	BRUNSWICK COUNTY POWER STATION	3/12/2013	COMBUSTION TURBINE GENERATORS, (3)	Natural Gas	3442	MMBTU/H	Three (3) Mitsubishi M501 GAC combustion turbine generators with HRSG duct burners (natural gas-fired).	Low sulfur/carbon fuel and good combustion practices.	0.0033	LB/MMBTU	3 H AVG/WITHOUT DUCT BURNING	9.7	lb/hr	3 H AVG/WITHOUT DUCT BURNING	0		
WA-0328	BP CHERRY POINT COGENERATION PROJECT	1/11/2005	GE 7FA COMBUSTION TURBINE &amp; HEAT RECOVERY STEAM GENERATOR	NATURAL GAS	174	MW	THREE IDENTICAL CT & HRSG UNITS. EACH CT WILL HAVE AN ANNUAL AVERAGE CAPACITY RATING OF 1614 MMBTU/HR. EACH HRSG DUCT BURNER WILL HAVE A MAXIMUM FIRING RATE OF 105 MMBTU/HR.	LIMIT FUEL TYPE TO NATURAL GAS	17	lb/hr		0			0		*SEE NOTES
CA-1191	VICTORVILLE 2 HYBRID POWER PROJECT	3/11/2010	COMBUSTION TURBINE #2 (NORMAL OPERATION, NO DUCT BURNING)	NATURAL GAS	154	MW	154 MW Combined Cycle Combustion Turbine Generator	PUC QUALITY NATURAL GAS	12	lb/hr	12-MONTH ROLLING AVG (NO DUCT BURNING)	0			0		
DE-0024	GARRISON ENERGY CENTER	1/30/2013	Unit 1	Natural Gas	2260	million BTUs		Fuel Usage Restriction to natural gas and low sulfur distillate oil	120.4	T/YR	12-MONTH ROLLING AVERAGE	0			0		
*IA-0107	MARSHALLTOWN GENERATING STATION	4/14/2014	Combustion turbine #1 - combined cycle	natural gas	2258	mmBTU/hr	two identical Siemens SGT6-5000F combined cycle turbines without duct firing, each at 2258 mmBTU/hr generating approx. 300 MW each.		0.01	LB/MMBTU	AVG. OF 3 ONE HOUR TEST RUNS	77.1	T/YR	12-MONTH ROLLING	0		

**Table D-A-10**  
**Particulate Matter 10 microns(PM) RBLC Search - Combustion Turbines Firing Natural Gas (Without Duct Burning)**  
**Invenery, LLC - Allegheny County Energy Center Project**

RBL CID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
LA-0257	SABINE PASS LNG TERMINAL	12/6/2011	Combined Cycle Refrigeration Compressor Turbines (8)	natural gas	286	MMBTU/H	GE LM2500-G4 Throughput is 2,257 MMBTU/H for each CTG	Good combustion practices and fueled by natural gas	2.08	lb/hr	HOURLY MAXIMUM	0			0		
*MI-0405	MIDLAND COGENERATION VENTURE	4/23/2013	Natural gas fueled combined cycle combustion turbine generators (CTG) with HRSG	Natural gas	2237	MMBTU/H	Equipment is permitted as following flexible group (FG): FG-CTG1-2: Two natural gas fired CTGs with each turbine containing a heat recovery steam generator (HRSG) to operate in combined cycle. The two CTGs (with HRSG) are connected to one steam turbine generator. Each CTG is equipped with a dry low NOx (DLN) burner and a selective catalytic reduction (SCR) system. The plant will be designed to generate 1,350 nominal megawatts of power. There are two configuration scenarios: either four Siemens SGT6-5000F CTGs in combined-cycle mode (Scenario A) or four GE Frame 7FA CTGs in combined cycle mode (Scenario B). Scenario B also includes one or two auxiliary boilers.	Good combustion practices	0.006	LB/MMBTU	EACH CTG, TEST PROTOCOL	0			0		
TX-0590	KING POWER STATION	8/5/2010	Turbine	natural gas	1350	MW		one low ash fuel (natural gas or low sulfur diesel as a backup) and good combustion practices	11.1	lb/hr		19.8	lb/hr		0		
TX-0620	ES JOSLIN POWER PLANT	9/12/2012	Combined cycle gas turbine	natural gas	195	MW	The three combustion turbine generators (CTG) will be the General Electric 7FA, each with a maximum base-load electric power output of approximately 195 megawatts (MW). The steam turbine is rated at approximately 235 MW. This project also includes the installation of two emergency generators, one fire water pump, and auxiliary equipment. No duct burners.	good combustion and natural gas as fuel	18	lb/hr	PER TURBINE	0			0		
*TX-0730	COLORADO BEND ENERGY CENTER	4/1/2015	Combined-cycle gas turbine electric generating facility	natural gas	1100	MW	combined cycle power plant that uses two combustion turbines and one steam turbine, model GE 7HA.02	efficient combustion, natural gas fuel	43	lb/hr		0			0		
*VA-0321	BRUNSWICK COUNTY POWER STATION	3/12/2013	COMBUSTION TURBINE GENERATORS, (3)	Natural Gas	3442	MMBTU/H	Three (3) Mitsubishi M501 GAC combustion turbine generators with HRSG duct burners (natural gas-fired).	Low sulfur/carbon fuel and good combustion practices.	0.0033	LB/MMBTU	3 H AVG/WITHOUT DUCT BURNING	9.7	lb/hr	3 H AVG/WITHOUT DUCT BURNING	0		
*WY-0070	CHEYENNE PRAIRIE GENERATING STATION	8/28/2012	Combined Cycle Turbine (EP01)	Natural Gas	40	MW		good combustion practices	4	lb/hr	3-HOUR AVERAGE	17.5	T/YR	1-HR AVERAGE, Duct Burners Off	0		
	Astoria Energy LLC		Combustion Turbine	Natural Gas	1000	MW		Clean Fuel	0.0098	LB/MMBTU	1-hr average, Duct Burners Off	12.9	lb/hr	1-hr average, Duct Burners Off			
	Gibson County Generation, LLC		Combustion Turbine	Natural Gas	417	MW			0.0048	LB/MMBTU	24-hr average						
	Pioneer Valley Energy Center		Combustion Turbine	Natural Gas	2542	MMBTU/hr			0.004	LB/MMBTU		9.8	lb/hr				
	Russell City Energy Company, LLC		Combustion Turbine	Natural Gas	2038.6	MMBTU/hr			7.5	lb/hr		0.0036	lb/MMBTU				
	Tenaska Partners LLC		Combustion Turbine	Natural Gas	3147	MMBTU/hr			11.8	lb/hr		0.0039	lb/MMBTU				
	UGI Development Co/ Humlock Creek			Natural Gas	471.2	MMBTU/hr			0.0141	LB/MMBTU							
	Hawkeye Generating, LLC			Natural Gas	615	MW			0.011	LB/MMBTU		211.86	T/YR				
	Huntington Beach Energy Project			Natural Gas	939	MW (net)			4.5	lb/hr							
	Hess Newark Energy Center		Combustion Turbine	Natural Gas	2320	MMBTU/hr			11	lb/hr							
	York Energy Center Block 1				1574	MMBTU/hr			0.0141	LB/MMBTU	hourly basis						
	Liberty Electric Power, LLC				1954	MMBTU/hr			0.0141	LB/MMBTU							
	Footprint Power Salem Harbor Development LP		Combustion Turbine	Natural Gas	346	MW		Clean Fuel	8.8	lb/hr	1-hr average, Duct Burners Off	0.0071	lb/MMBTU	1-hr average, Duct Burners Off			
	Footprint Power Salem Harbor Development LP		Combustion Turbine	Natural Gas	346	MW		Clean Fuel	0.041	lb/MW-hr	1-hr average, Duct Burners Off						
	PacifiCorp Energy		Block 1 CT	Natural Gas					10.8	lb/hr	30-day rolling average						
	PacifiCorp Energy		Block 2 CT	Natural Gas	629	MW			14	lb/hr	30-day rolling average						
	Woodbridge Energy Center (CPV Shore, LLC)			Natural Gas	2,307	MMBTU/hr			12.1	lb/hr							
	Hummel Station LLC		Combustion Turbine	Natural Gas	2,254.00	MMBTU/hr			17.3	lb/hr							
	Hummel Station LLC		Combustion Turbine	Natural Gas	2,254.00	MMBTU/hr			14	lb/hr							
	Cricket Valley Energy Center		Combustion Turbine	Natural Gas	1000	MW		Combusting commercially available, pipeline natural gas in the turbines and duct burners	0.006	LB/MMBTU	1-hr average						
	Gibson County Generation, LLC		Combustion Turbine	Natural Gas	417	MW			28.9	lb/hr		0.0088	lb/MMBTU	24-hr average			
	York Energy Center Block 2	6/15/2015			2512.5	MMBTU/hr	firing NG without duct burner		10.7	lb/hr	average of 3 test runs						

**Table D-A-11**  
**Particulate Matter 2.5 microns(PM) RBLC Search - Combustion Turbines Firing Natural Gas (With Duct Burning)**  
**Invenergy, LLC - Allegheny County Energy Center Project**

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
CT-0161	KILLINGLY ENERGY CENTER	6/30/2017	Natural Gas w/Duct Firing	Natural Gas	2639	MMBTU/hr	Duct burner MRC is 946 MMBtu/hr	Good Combustion	0.005	LB/MMBTU		0			0		
LA-0313	ST. CHARLES POWER STATION	8/31/2016	SCPS Combined Cycle Unit 1A	Natural Gas	3625	MMBTU/hr		Good combustion practices and clean burning fuels (natural gas)	17.52	LB/H	HOURLY MAXIMUM	73.35	T/YR	ANNUAL MAXIMUM	0		
LA-0313	ST. CHARLES POWER STATION	8/31/2016	SCPS Combined Cycle Unit 1B	Natural Gas	3625	MMBTU/hr		Good combustion practices and clean burning fuel (natural gas)	17.52	LB/H	HOURLY MAXIMUM	73.35	T/YR	ANNUAL MAXIMUM	0		
MI-0423	INDECK NILES, LLC	1/4/2017	FOCT GHRSG (2) Combined Cycle	Natural gas	8322	MMBTU/H	There are 2 combined cycle natural gas-fired combustion turbine generators (CTGs) with heat recovery steam generators (HRSG) identified as EUCGTGHRSG1 & EUCGTGHRSG2	Good Combustion Practices, inlet air conditioning, and the use of pipeline	19.8	LB/H	TEST PROTOCOL	0			0		
MI-0424	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH	12/5/2016	FOCT GHRSG (2) Combined cycle	Natural gas	554	MMBTU/H, each	Two combined cycle natural gas fired combustion turbine generators (CTGs) with heat recovery steam generators (HRSG) (EUCGTGHRSG10 & EUCGTGHRSG11) in Three (3) combined-cycle combustion turbine (CT) / heat recovery steam generator (HRSG) trains. Each CT is a natural gas fired Mitsubishi model 501G, equipped	Good combustion practices and the use of pipeline quality natural gas.	0.014	LB/MMBTU	TEST PROTOCOL	0			0		
*MI-0432	NEW COVERT GENERATING FACILITY	7/30/2018	FO-TURB-D1-3-G combined cycle	Natural gas	1230	MW	A combined-cycle natural gas-fired combustion turbine generator (CTG) with heat recovery steam generator (HRSG) in a 1x1 configuration with a steam turbine	Use clean fuel (natural gas) and good combustion practices.	10.7	LB/H	HOURLY, EACH CTRHSG TRAIN	0			0		
*MI-0433	MCC NORTH, LLC AND MCC SOUTH LLC	6/29/2018	EUCGTGHRSG (North Plant), A	Natural gas	500	MW	Nominal 500 MW electricity production. Turbine rating of 3,080 MMBTU/hr (HHV) and HRSG duct burner rating of 755 MMBTU/hr (HHV).	Good combustion practices, inlet air conditioning, and the use of pipeline	19.1	LB/H	HOURLY	0			0		
*MI-0433	MCC NORTH, LLC AND MCC SOUTH LLC	6/29/2018	EUCGTGHRSG (North Plant), A	Natural gas	500	MW	Two (2) combined-cycle natural gas-fired combustion turbine generators, each with a heat recovery steam generator (CTGHRSG).	Good combustion practices, inlet air conditioning and the use of pipeline	19.1	LB/H	HOURLY	0			0		
*MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	FOCTGHRSG1	Natural gas	0			Good combustion practices, inlet air conditioning, and the use of pipeline	16	LB/H	HOURLY, EACH UNIT	12.2	LB/H	HOURLY, EACH UNIT W/O DUCT	0		
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	Combined Cycle Combustion Turbine	natural gas	4000	h/yr		COMPLIANCE BY STACK TESTING	18.3	LB/H	AV OF THREE ONE H STACK	0			0		
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	Combined Cycle Combustion Turbine	Natural Gas	8040	H/YR		USE OF NATURAL GAS A CLEAN BURNING FUEL	11.7	LB/H	AV OF THREE ONE H STACK	0			0		
*PA-0306	TENASKA PA PARTNERS WESTMORELAND CPV FAIRVIEW ENERGY CENTER	2/12/2016	Large combustion turbine	Natural Gas	0		This process entry is for operations with the duct burner. Limits entered are for each turbine.	Good combustion practices	0.0039	LB/MMBTU		11.8	LB/HR		0		
*PA-0310	CPV FAIRVIEW ENERGY CENTER	9/2/2016	Combustion turbine and HRSG with duct	Natural Gas	3338	MMBTU/hr	Emission limits are for each turbine operating with duct burner and do not include startup/shutdown emissions. Tons per year limits is a cumulative value for all three.	Low sulfur fuel, good combustion practices	0.005	LB/MMBTU		131.5	TONS	12-MONTH ROLLING BASIS	0		
*PA-0310	CPV FAIRVIEW ENERGY CENTER	9/2/2016	Combustion turbine and HRSG without	Natural gas	0		Emission limits are for each turbine fueled by NG and operating without duct burner being fired and do not include startup/shutdown emissions.	Low sulfur fuels and good combustion practices	0.0068	LB/MMBTU		0			0		
TX-0819	GAINES COUNTY POWER PLANT	4/28/2017	Combined Cycle Turbine with Heat	NATURAL GAS	426	MW	Four Siemens SGT6-5000/5 natural gas fired combustion turbines with HRSGs and Steam Turbine Generators	Pipeline quality natural gas; good combustion practices	0			0			0		
*VA-0325	GREENSVILLE POWER STATION	6/17/2016	COMBUSTION TURBINE	natural gas	3227	MMBTU/HR	3227 MMBTU/HR CT with 500 MMBTU/HR Duct Burner, 3 on 1 configuration.	Pipeline Quality Natural Gas	0.0039	LB/MMBTU	AVG OF 3 TEST RUNS	14.1	LB/H		0		
AK-0071	INTERNATIONAL STATION POWER PLANT	12/20/2010	GE LM6000PF-25 Turbines (4)	Natural Gas	59900	hp ISO	Turbine-duct burner pairs exhaust through common stack	Good Combustion Practices	0.0066	LB/MMBTU	3-HOUR AVERAGE	0			0		
AK-0071	INTERNATIONAL STATION POWER PLANT	12/20/2010	GE LM6000PF-25 Turbines (4)	Natural Gas	59900	hp ISO	Turbine-duct burner pairs exhaust through common stack	Good Combustion Practices	0.0066	LB/MMBTU	3-HOUR AVERAGE	0			0		
CA-1191	VICTORVILLE 2 HYBRID POWER PROJECT	3/11/2010	COMBUSTION TURBINE #2 (NORMAL OPERATION, WITH DUCT BURNING)	NATURAL GAS	154	MW	154 MW Combined Cycle Combustion Turbine Generator	PUC QUALITY NATURAL GAS	18	lb/hr	12-MONTH ROLLING AVG (W/ DUCT BURNING)	0			0		
CA-1191	VICTORVILLE 2 HYBRID POWER PROJECT	3/11/2010	COMBUSTION TURBINE #1 (NORMAL OPERATION, WITH DUCT BURNING)	NATURAL GAS	154	MW	154 MW Combined Cycle Combustion Turbine Generator	USE PUC QUALITY NATURAL GAS	18	lb/hr	12-MONTH ROLLING AVG (W/ DUCT BURNING)	0			0		
CA-1192	AVENAL ENERGY PROJECT	6/21/2011	COMBUSTION TURBINE #2 (NORMAL OPERATION, WITH DUCT BURNING)	NATURAL GAS	180	MW		USE PUC QUALITY NATURAL GAS	11.78	lb/hr	12-MONTH ROLLING AVG	0			0		
CA-1198	MORRO BAY POWER PLANT	9/25/2008	COMBUSTION TURBINE GENERATOR	NATURAL GAS	180	MW		USE PIPELINE QUALITY NATURAL GAS, OPERATE DUCT BURNERS NO MORE THAN 4000 HRS PER YEAR (12-MONTH ROLLING AVG BASIS)	11	lb/hr	6-HR ROLLING AVG (NO DUCT BURNING)	13.3	lb/hr	6-HR ROLLING AVG (W/ DUCT BURNING)	0		
CA-1212	PALMDALE HYBRID POWER PROJECT	10/18/2011	COMBUSTION TURBINES (NORMAL OPERATION)	NATURAL GAS	154	MW	TWO NATURAL GAS-FIRED COMBUSTION TURBINE-GENERATORS (CTGS) RATED AT 154 MEGAWATT (MW, GROSS) EACH, TWO HEAT RECOVERY STEAM GENERATORS (HRSG), ONE STEAM TURBINE GENERATOR (STG) RATED AT 267 MW, AND 251 ACRES OF PARABOLIC SOLAR-THERMAL COLLECTORS WITH ASSOCIATED HEAT-TRANSFER EQUIPMENT	USE PUC QUALITY NATURAL GAS	0.0048	LB/MMBTU	9-HR AVG (NO DUCT BURNING)	0.0049	LB/MMBTU	9-HR AVG (W/ DUCT BURNING)	0		
DE-0024	GARRISON ENERGY CENTER	1/30/2013	Unit 1	Natural Gas	2260	million BTUs		Fuel Usage Restriction to natural gas and low sulfur distillate oil	120.4	TONS/Y	12 MONTH ROLLING AVERAGE	0			0		
*IL-0112	NELSON ENERGY CENTER	12/28/2010	Electric Generation Facility	Natural Gas	220	MW each	Two combined cycle combustion turbines followed by HRSGs with capability for supplemental fuel firing in HRSG for each combustion turbine using duct burners.	Good Combustion Practice and Fuel Specification	0.006	LB/MMBTU	HOURLY AVERAGE	0			0		
*IN-0158	ST. JOSEPH ENERGY CENTER, LLC	12/3/2012	FOUR (4) NATURAL GAS COMBINED CYCLE COMBUSTION TURBINES	NATURAL GAS	2300	MMBTU/H	EACH TURBINE IS EQUIPPED WITH DRY LOW NOX BURNERS, NATURAL GAS FIRED DUCT BURNERS, AND A HEAT RECOVERY STEAM GENERATOR IDENTIFIED AS HRSG. NOX EMISSIONS CONTROLLED BY SELECTIVE CATALYTIC REDUCTION SYSTEMS (SCR) ALONG WITH CO AND VOC EMISSIONS CONTROLLED BY OXIDATION CATALYST SYSTEMS (CAT) IN EACH TURBINE. EACH STACK HAS CONTINUOUS EMISSIONS MONITORS FOR NOX AND CO. COMBINED NOMIAL POWER OUTPUT IS 1,350 MW.	WHILE FIRING NATURAL GAS: USE OF PIPELINE QUALITY NATURAL GAS AND GOOD COMBUSTION PRACTICES	18	lb/hr	3 HOURS	0.0078	LB/MMBTU	3 HOURS	0		
LA-0254	NINEMILE POINT ELECTRIC GENERATING PLANT	8/16/2011	COMBINED CYCLE TURBINE GENERATORS (UNITS 6A & 6B)	NATURAL GAS	7146	MMBTU/H	TURBINES ALSO PERMITTED TO BURN NO. 2 FUEL OIL AND ULTRA LOW SULFUR DIESEL.	WHILE FIRING FUEL OIL: USE OF ULTRA LOW SULFUR FUEL OIL AND GOOD COMBUSTION PRACTICES	26.23	lb/hr	HOURLY AVERAGE W/O DUCT BURNER	33.16	lb/hr	HOURLY AVERAGE W/ DUCT BURNER	0		
LA-0256	COGENERATION PLANT	12/6/2011	COGENERATION TRAINS 1-3 (1-10, 2-10, 3-10)	NATURAL GAS	475	MMBTU/H	EACH COGEN TRAIN CONSISTS OF A 50 MW GE LM6000 PF SPRINT TURBINE AND A HEAT RECOVERY STEAM GENERATOR EQUIPPED WITH A 70 MM BTU/HR DUCT BURNER.	USE OF NATURAL GAS AS FUEL AND GOOD COMBUSTION PRACTICES	3.72	lb/hr	HOURLY MAXIMUM	0			0		
LA-0257	SABINE PASS LNG TERMINAL	12/6/2011	Combined Cycle Refrigeration Compressor Turbines (8)	natural gas	286	MMBTU/H	GE LM2500+G4 two 315 MW (nominal) GE Energy 7F Series 5 Rapid Response Combined Cycle	Good combustion practices and fueled by natural gas	2.08	lb/hr	HOURLY MAXIMUM	0			0		
*MA-0039	SALEM HARBOR STATION REDEVELOPMENT	1/30/2014	Combustion Turbine with Duct Burner	Natural Gas	2449	MMBTU/hr	Combustion Turbines with Duct Burners and 31 MW (estimated) steam turbine generators	NOT APPLY DURING SS	0.0062	LB/MMBTU	1 HR AVG/DO NOT APPLY DURING SS	13	lb/hr	1 HR AVG/DO NOT APPLY DURING SS	0		

**Table D-A-11**  
**Particulate Matter 2.5 microns(PM) RBLC Search - Combustion Turbines Firing Natural Gas (With Duct Burning)**  
**Invenery, LLC - Allegheny County Energy Center Project**

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
*MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014	2 COMBINED CYCLE COMBUSTION TURBINES, WITH DUCT FIRING	NATURAL GAS	1000	MW	TWO MITSUBISHI & G&S MODEL COMBUSTION TURBINE GENERATORS (CTGS) WITH A NOMINAL GENERATING CAPACITY OF 270 MW CAPACITY EACH, COUPLED WITH A HEAT RECOVERY STEAM GENERATOR (HRSG) EQUIPPED WITH DUCT BURNERS, DRY LOW-NOX COMBUSTORS, SELECTIVE CATALYTIC REDUCTION (SCR), OXIDATION CATALYST	EXCLUSIVE USE OF PIPELINE QUALITY NATURAL GAS AND EFFICIENT TURBINE DESIGN	38	lb/hr	AVERAGE OF 3 STACK TEST RUNS	0			0		
*MI-0405	MIDLAND COGENERATION VENTURE	4/23/2013	Natural gas fueled combined cycle combustion turbine generators (CTG) with HRSG	Natural gas	2237	MMBTU/H	Throughput is 2,237 MMBTU/H for each CTG  Equipment is permitted as following flexible group (FG): FG-CTG1-2: Two natural gas fired CTGs with each turbine containing a heat recovery steam generator (HRSG) to operate in combined cycle. The two CTGs (with HRSG) are connected to one steam turbine generator. Each CTG is equipped with a dry low NOx (DLN) burner and a selective catalytic reduction (SCR) system.	Good combustion practices	0.006	LB/MMBTU	EACH CTG; TEST PROTOCOL	0.012	LB/MMBTU	EACH CTG; TEST PROTOCOL	0		
*MI-0405	MIDLAND COGENERATION VENTURE	4/23/2013	Natural gas fueled combined cycle combustion turbine generators (CTG) with HRSG and duct burner (DB)	Natural gas	2486	MMBTU/H	Four GE 7FA combined cycle turbines, dry low NOx burners and selective catalytic reduction. These limits are for each of the 4 turbines individually, while operating with the duct burners on. This permit is a modification to RBLC OH-0252 to remove hourly restrictions on duct burners.	Good combustion practices	0.008	LB/MMBTU	TEST PROTOCOL	19.9	lb/hr	TEST PROTOCOL	0		
*MI-0410	THETFORD GENERATING STATION	7/25/2013	FOCCA or FOCCB-4 nat. gas fired CTG w/ DB for HRSG	natural gas	2587	MMBTU/H heat input, each CTG	Natural gas fired CTG with DB for HRSG; 4 total.  Technology A (4 total) is 2587 MMBTU/H design heat input each CTG.  Technology B (4 total) is 2688 MMBTU/H design heat input each CTG.  Permit was issued for either of two F Class turbine technologies with slight variations in emission rates. Applicant will select one technology. Installation is two separate CTG/HRSG trains driving one steam turbine electrical generator. Two 2X1 Blocks. Each CTG will be rated at 211 to 230 MW (gross) output and the station nominal generating capacity will be up to 1,400 MW.	Combustion air filters, efficient combustion control, low sulfur natural gas fuel.	0.0066	LB/MMBTU	TEST PROTOCOL (3 1-H TESTS IF POSSIBLE)	0			0		
*MI-0412	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	12/4/2013	FG-CTG/HRSG: 2 Combined cycle CTGs with HRSGs with duct burners	natural gas	647	MMBTU/H for each CTG/HRSG	This process is identified in the permit as FGCTG/HRSG; it is 2 combined cycle natural gas-fired combustion turbine generators (CTGs) with Heat Recovery Steam Generators (HRSGs) equipped with duct burners for supplemental firing (EUCTG/HRSG1 & EUCTG/HRSG2 in FGCTG/HRSG). The total hours for both units combined for startup and shutdown shall not exceed 635 hours per 12-month rolling time period. Each CTG/HRSG shall not exceed 647 MMBtu/hr on a fuel heat input basis.	Good combustion practices and the use of pipeline quality natural gas.	0.014	LB/MMBTU	TEST PROTOCOL	0			0		
NJ-0074	WEST DEPTFORD ENERGY	5/6/2009	COMBINED CYCLE COMBUSTION TURBINE WITH DUCT BURNER - SIEMENS	NATURAL GAS	17298	MMBTU/HR		USE OF CLEAN FUELS, NATURAL GAS AND ULTRA LOW SULFUR DISTILLATE OIL	18.66	lb/hr		0			0		
*NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITH DUCT BURNER - SIEMENS	Natural Gas	33691	MMBTU/HR	Natural Gas Usage <= 33,691 MMBtu/3yr per 365 consecutive day period, rolling one day basis (per two Siemens turbines and two associated duct burners) The heat input rate of the Siemens turbine will be 2,356 MMBtu/hr(HHV) with a 62.1 duct burner MMBtu/hr(HHV).	Use of natural gas as a clean burning fuel	14	lb/hr	AVERAGE OF THREE ONE HOUR TESTS	0			0		
*NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITH DUCT BURNER - GENERAL ELECTRIC	Natural gas	33691	MMBTU/HR	Natural Gas Usage <= 33,691 MMBtu/3yr per 365 consecutive day period, rolling one day basis (per two turbines and two duct burners) The heat input rate of each General Electric combustion each turbine will be 2,312 MMBtu/hr(HHV) with a 164.4 MMBtu/hr duct burner	Use of natural gas only as a clean burning fuel	14.6	lb/hr	AVERAGE OF THREE ONE HOUR TESTS	0			0		
*NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITH DUCT BURNER - GENERAL ELECTRIC	Natural gas	33691	MMBTU/HR	Natural Gas Usage <= 33,691 MMBtu/3yr per 365 consecutive day period, rolling one day basis (per two turbines and two duct burners) The heat input rate of each General Electric combustion each turbine will be 2,312 MMBtu/hr(HHV) with a 164.4 MMBtu/hr duct burner	Use of Natural Gas as a clean burning fuel	9.8	lb/hr	AVERAGE OF THREE ONE HOUR TESTS	0			0		
*NJ-0082	WEST DEPTFORD ENERGY STATION	7/18/2014	Combined Cycle Combustion Turbine with Duct Burner	Natural Gas	20282	MMBTU/HR	This is a 427 MW Siemens Combined Cycle Turbine with duct burner Heat Input rate of the turbine = 2276 MMBtu/hr (HHV) Heat Input rate of the Duct burner= 777 MMBtu/hr(HHV)	Use of Natural Gas as a clean burning fuel	21.55	lb/hr	AVERAGE OF THREE STACK TEST RUNS	0.0069	LB/MMBTU	AVERAGE OF THREE STACK TEST RUNS	0		
PA-0278	MOXIE LIBERTY LLC/ASYLUM POWER PL T	10/10/2012	Combined-cycle Turbines (2) - Natural gas fired	Natural Gas	3277	MMBTU/H	The fuel use of 20,282 MMCF/YR is for three turbines and three Duct burners. Two combine cycle Turbines, each with a combustion turbine and heat recovery steam generator with duct burner. Each combined-cycle process will be rated at 468 MW or less. The heat input rating of each combustion gas turbine is 2890 MMBtu/hr (HHV) or less, and the heat input rating of each supplemental duct burner is equal to 387 MMBtu/hr (HHV) or less.	Using fuel with little or no ash and sulfur content.	0.004	LB/MMBTU	FOR 468 MW POWERBLOCK	0.0057	LB/MMBTU	FOR 454 MW POWERBLOCK	0		
*PA-0286	MOXIE ENERGY LLC/PATRIOT GENERATION PLT	1/31/2013	Combined Cycle Power Blocks 472 MW - (2)	Natural Gas	0		Two natural-gas-fired combined cycle powerblocks where each powerblock consists of a combustion turbine and heat recovery steam generator with duct burner.		0.0057	LB/MMBTU		54	T/YR	TOTAL PM FOR EACH UNIT	0		
*PA-0288	SUNBURY GENERATION LP/SUNBURY SES	4/1/2013	Combined Cycle Combustion Turbine AND DUCT BURNER (3)	Natural Gas	2538000	MMBTU/H	Three powerblocks consisting of three (3) natural gas fired F class combustion turbines coupled with three (3) heat recovery steam generators (HRSGs) equipped with natural gas fired duct burners.		0.0088	LB/MMBTU		0			0		
*PA-0296	BERKS HOLLOW ENERGY ASSOC LLC/ONTELAUNEE	12/17/2013	Turbine, Combined Cycle, #1 and #2	Natural Gas	3046	MMBTU/hr	Equipped with SCR and Oxidation Catalyst		48.56	TPY	12-MONTH ROLLING TOTAL	21.55	lb/hr		0		
TX-0590	KING POWER STATION	8/5/2010	Turbine	natural gas	1350	MW	The plant will be designed to generate 1,350 nominal megawatts of power. There are two configuration scenarios: either four Siemens SGT6-5000F CTGs in combined-cycle mode (Scenario A) or four GE Frame 7FA CTGs in combined cycle mode (Scenario B). Scenario B also includes one or two auxiliary boilers.	use of low ash fuel (natural gas or low sulfur diesel as a backup).	11.1	lb/hr		19.8	lb/hr		0		
TX-0618	CHANNEL ENERGY CENTER LLC	10/15/2012	Combined Cycle Turbine	natural gas	180	MW	The turbine is a Siemens 501F rated at a nominal 180 MW and the duct burner will have a maximum design heat input of 475 MMBtu/hr.	good combustion and the use of gaseous fuel	27	lb/hr		0			0		
TX-0619	DEER PARK ENERGY CENTER	9/26/2012	Combined Cycle Turbine	natural gas	180	MW	natural gas-fired combined cycle turbine generator with a heat recovery steam generator equipped with a duct burner. The turbine is a Siemens 501F rated at a nominal 180 megawatts and the DB will have a maximum design rate capability of 725 million British thermal units per hour		27	lb/hr		0			0		

**Table D-A-11**  
**Particulate Matter 2.5 microns(PM) RBLC Search - Combustion Turbines Firing Natural Gas (With Duct Burning)**  
**Invenergy, LLC - Allegheny County Energy Center Project**

RBL CID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
							The generating equipment consists of two natural gas-fired combustion turbines (CTs), each exhausting to a fired heat recovery steam generator (HRSG) to produce steam to drive a shared steam turbine generator. The steam turbine is rated at 271 MW of electric output. Three models of combustion turbines are being considered for this site: the General Electric 7FA.05, the Siemens SGT6-5000F(4), and the Siemens SGT6-5000F(5). The final selection of the combustion turbine will not be made until after the permit is issued. Plant output will range between 637 and 735 MW, depending on the model turbine selected. Duct Burners are rated at 750 MMBtu/hr each.										
*TX-0641	PINECREST ENERGY CENTER	11/12/2013	combined cycle turbine	natural gas	700	MW		pipeline quality natural gas and good combustion practices	26.2	lb/hr		0				0	
*TX-0660	FGE TEXAS POWER I AND FGE TEXAS POWER II	3/24/2014	Alstom Turbine	Natural Gas	230.7	MW	Four (4) Alstom GT24 CTGs, each with a HRSG and DBs, max design capacity 409 MMBtu/hr	Low sulfur fuel, good combustion practices	2	PPMVD		0					
*TX-0678	FREEPORT LNG PRETREATMENT FACILITY	7/16/2014	Combustion Turbine	natural gas	87	MW	The exhaust heat from the turbine will be used to heat a heating medium which is used to regenerate rich amine from the acid gas removal system.		15.22	lb/hr		0				0	
*TX-0689	CEDAR BAYOU ELECTRIC GENERATION STATION	8/29/2014	Combined cycle natural gas turbines	Natural Gas	225	MW		Good combustion practices, natural gas	0			0				0	
*TX-0698	BAYPORT COMPLEX	9/5/2013	(4) cogeneration turbines	natural gas	90	MW	(4) GE 7EA turbines providing power and process steam		0			0				0	
							The specific equipment includes two combustion turbines (CTs) connected to electric generators, producing between 183 and 232 MW of electricity, depending on ambient temperature and the selected CT. The two HRSGs use duct burners rated at 750 MMBtu/hr each to supplement the heat energy from the CTs. The steam from the two HRSGs is combined and routed to a single steam turbine driving a third electric generator with an electricity output capacity of 271 MW. Depending on the selected CT, total plant output at 59.4°F is between 637 MW and 735 MW.										
*TX-0708	LA PALOMA ENERGY CENTER	2/7/2013	(2) combined cycle turbines	natural gas	650	MW	The applicant is considering three models of CT; one model will be selected and the permit revised to reflect the selection before construction begins. The three CT models are: (1) General Electric 7FA.04; (2) Siemens SGT6-5000F(4); or (3) Siemens SGT6-5000F(5).		0			0				0	
*TX-0709	SAND HILL ENERGY CENTER	9/13/2013	Natural gas-fired combined cycle turbines	Natural Gas	173.9	MW			0			0				0	
							General Electric 7FA.04 at 197 MW nominal output. The duct burners will be capable of a maximum natural gas firing rate of up to 483 MMBtu/hr (HHV). The duct burners may be fired additional hours; however, total annual firing will not exceed the equivalent of 4,375 hours at maximum capacity per duct burner. The available capacity of the existing steam turbine will be increased from 125 MW in its existing 1x1x1 configuration to approximately 185 MW in the 2x2x1 configuration.										
*TX-0710	VICTORIA POWER STATION	12/1/2014	combined cycle turbine	natural gas	197	MW	The facility will consist of a Mitsubishi Heavy Industries (MHI) J model gas fired combustion turbine nominally rated at 497 megawatts (MW) equipped with a HRSG and DB with a maximum design capacity of 402 million British thermal units per hour (MMBtu/hr). The gross nominal output of the CTG with HRSG and DB is 530 MW.		0			0				0	
*TX-0712	TRINIDAD GENERATING FACILITY	11/20/2014	combined cycle turbine	natural gas	497	MW			0			0				0	
							Each CTG is site-rated at 274 MW gross electric output at 62.4°F ambient temperature. At this condition, two HRSGs with full duct burner firing produce enough steam to generate an additional 336 MW, for a total of 884 MW gross, or with about 5% losses, about 840 MW net electric output. Under summertime conditions, the net output is approximately 800 MW with the 2x1 CCGT configuration or about 400 MW with the 1x1 CCGT configuration.		0			0				0	
*TX-0713	TENASKA BROWNSVILLE GENERATING STATION	4/29/2014	(2) combined cycle turbines	natural gas	274	MW			0			0				0	
							The gas turbines will be one of three options:  (1) Two Siemens Model F5 (SF5) CTGs each rated at nominal capability of 225 megawatts (MW). Each CTG will have a duct fired HRSG with a maximum heat input of 688 million British thermal units per hour (MMBtu/hr).  (2) Two General Electric Model 7FA (GE7FA) CTGs each rated at nominal capability of 215 MW. Each CTG will have a duct fired HRSG with a maximum heat input of 523 MMBtu/hr.  (3) Two Mitsubishi Heavy Industry G Frame (MHI501G) CTGs each rated at a nominal electric output of 263 MW. Each CTG will have a duct fired HRSG with a maximum heat input of 686 MMBtu/hr.										
*TX-0714	S R BERTRON ELECTRIC GENERATING STATION	12/19/2014	(2) combined cycle turbines	natural gas	240	MW			0			0				0	
*TX-0730	COLORADO BEND ENERGY CENTER	4/1/2015	Combined-cycle gas turbine electric generating facility	natural gas	1100	MW	combined cycle power plant that uses two combustion turbines and one steam turbine, model GE 7HA.02	efficient combustion, natural gas fuel	43	lb/hr		0				0	
*TX-0751	EAGLE MOUNTAIN STEAM ELECTRIC STATION	6/18/2015	Combined Cycle Turbines (&gt;25 MW) &lt; natural gas	natural gas	210	MW	Two power configuration options authorized Siemens &lt; 231 MW + 500 million British thermal units per hour (MMBtu/hr) duct burner GE &lt; 210 MW + 349.2 MMBtu/hr duct burner		35.47	lb/hr		81.88	T/YR			0	
*TX-0767	LON C. HILL POWER STATION	10/2/2015	Combined Cycle Turbines (&gt;25 MW)	natural gas	195	MW	Siemens &lt; 240 MW + 250 million British thermal units per hour (MMBtu/hr) duct burner GE &lt; 195 MW + 670 MMBtu/hr duct burner	Good combustion practices and use of pipeline quality natural gas	16	lb/hr		109.5	TPY			0	
VA-0315	WARREN COUNTY POWER PLANT - DOMINION	12/17/2010	BURNER, 3 COMBUSTION TURBINE	Natural Gas	2996	MMBTU/H	Emissions are for one of three units (Mitsubishi natural gas-fired combustion turbine (CT) generator, Model M501 GAC).	Natural Gas only, fuel has maximum sulfur content of 0.0003% by weight.	8	lb/hr	3 HR AVG. (WITHOUT DUCT BURNER FIRING)	14	lb/hr			0	
*VA-0321	BRUNSWICK COUNTY POWER STATION	3/12/2013	GENERATORS, (3)	Natural Gas	3442	MMBTU/H	Three (3) Mitsubishi M501 GAC combustion turbine generators with HRSG duct burners (natural gas-fired).  This entry is for both of two identical units at the facility.	Low sulfur/carbon fuel and good combustion practices.	0.0047	LB/MMBTU	3 H AVG/WITH DUCT BURNING	9.7	lb/hr	3 H AVG/WITHOUT DUCT BURNING	16.3	3 H AVG/WITH DUCT BURNING	
*WV-0025	MOUNDSVILLE COMBINED CYCLE POWER PLANT	11/21/2014	Combined Cycle Turbine/Duct Burner	Natural Gas	2419.61	mmBtu/Hr	Nominal 197 mW General Electric Frame 7FA.04 Turbine w/ Duct Burner - throughput denotes aggregate heat input of turbine and duct burner (HHV).	Good Combustion Practices, Inlet Air Filtration, & use of Natural Gas	8.9	lb/hr		0.0037	LB/MMBTU			0	
*WV-0070	CHEYENNE PRAIRIE GENERATING STATION	8/28/2012	Combined Cycle Turbine (EP02)	Natural Gas	40	MW		good combustion practices	4	lb/hr	3-HOUR AVERAGE	17.5	TONS	CALENDAR YEAR		0	
	Footprint Power Salem Harbor Development LP		Combustion Turbine	Natural Gas	346	MW		Clean Fuel	13	lb/hr	1-hr average; Duct Burners On	0.0062	lb/MMBtu	1-hr average; Duct Burners On			
	Footprint Power Salem Harbor Development LP		Combustion Turbine	Natural Gas	346	MW		Clean Fuel	0.041	lb/MW-hr	1-hr average; Duct Burners On						
	Kalama Energy Center		Combustion Turbine	Natural Gas	2247	MMBtu/hr			17.1	lb/hr	3-hr average	0.0068	lb/MMBtu	3-hr average			
	Kalama Energy Center		Combustion Turbine	Natural Gas	2247	MMBtu/hr			70	tpy	12-mo rolling						



**Table D-A-11**  
**Particulate Matter 2.5 microns(PM) RBLC Search - Combustion Turbines Firing Natural Gas (With Duct Burning)**  
**Invenergy, LLC - Allegheny County Energy Center Project**

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
	GenCom Middletown LLC		Combustion Turbine	Natural Gas	474.9	MMBtu/hr				6 lb/hr							
	PacifiCorp Energy		Block 1 CT	Natural Gas						10.8 lb/hr	30-day rolling average						
	PacifiCorp Energy		Block 2 CT	Natural Gas	629	MW				14 lb/hr	30-day rolling average						
	Pioneer Valley		Combustion Turbine	Natural Gas	387	MW				0.004 lb/MMBtu							
	Sevier Power Company Power Plant		Combustion Turbine	Natural Gas	580	MW				14 lb/hr	30-day rolling average						
	Woodbridge Energy Center (CPV Shore, LLC)			Natural Gas	2807	MMBtu/hr				19.1 lb/hr	(With DB)						
	Crocket Valley Energy Center		Combustion Turbine	Natural Gas	1000	MW				191.1 tpy							
	Gibson County Generation, LLC		Combustion Turbine	Natural Gas	417	MW				28.9 lb/hr		0.0088 lb/MMBtu	lb/MMBtu	24-hr average			
	Tenaska Partners LLC		Combustion Turbine	Natural Gas	3147	MMBtu/hr				11.8 lb/hr		0.0039 lb/MMBtu	lb/MMBtu				
	UGI Development Co/ Haddock Creek			Natural Gas	471.2	MMBtu/hr				0.0141 lb/MMBtu							
	Huntington Beach Energy Project			Natural Gas	939	MW (net)				9.5 lb/hr							
	Hess Newark Energy Center		Combustion Turbine	Natural Gas	2266	MMBtu/hr				13.2 lb/hr							
	York Energy Center Block 2	6/15/2015			2512.5	MMBtu/hr	firing NG with duct burner			18.4 lb/hr	average of 3 test runs						
	Shell Chemical Appalachia/Petrochemicals Complex	6/18/2015			664	MMBtu/hr	each of the combustion turbines with duct burners			0.0066 lb/MMBtu	combustion turbines with duct burners						

**Table D-A-12**  
**Particulate Matter 2.5 microns(PM) RBLC Search - Combustion Turbines Firing Natural Gas (Without Duct Burning)**  
**Invenergy, LLC - Allegheny County Energy Center Project**

RBL CID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
CT-0161	KILLINGLY ENERGY CENTER	6/30/2017	Natural Gas w/o Duct Firing	Natural Gas	2969	MMBtu/hr	Throughput is for turbine only	Good Combustion	0.0044	LB/MMBTU		0			0		
FL-0356	OKEECHOBEE CLEAN ENERGY CENTER	3/9/2016	Combined-cycle electric generating unit	Natural gas	3096	MMBtu/hr per turbine	3-on-1 combined cycle unit. GE 7HA.02 turbines, approximately 350 MW per turbine. Total unit generating capacity is approximately 1,600 MW. Primarily fueled with natural gas. Permitted to burn the base-load equivalent of 500 hr/yr per turbine on ULSD.	Use of clean fuels		GR. S/100 SCF GAS	FOR NATURAL GAS	0.0015	% S IN ULSD	FOR ULSD	0		
*FL-0363	DANIA BEACH ENERGY CENTER	12/4/2017	2-on-1 combined cycle unit (GE 7HA EUCTT (Combined cycle CTG with unfired HRSG)	Natural gas	4000	MMBtu/hr	Two nominal 430 MW combustion turbines, coupled to a steam turbine generator	Clean fuels	0			0			0		
MI-0427	FILER CITY STATION	11/17/2017	FGCTGHRSG (EUCTGHRSG-1 &amp; EUCTGHRSG2)	Natural gas	1934.7	MMBTU/H	A 1,934.7 MMBTU/H natural gas fired heavy frame industrial combustion turbine. The turbine operates in combined-cycle with an unfired heat recovery steam generator (HRSG). Two (2) combined-cycle natural gas-fired combustion turbine generators, each with a heat recovery steam generator (CTGHRSG).	Good combustion practices and the use of pipeline quality natural gas, combustion inlet air filter.	0.0066	LB/MMBTU		0			0		
*MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	Plant nominal 1,150 MW electricity production. Turbines are each rated at 3,658 MMBTU/H and HRSG duct burners are each rated at 800 MMBTU/H.	Natural gas	0		The HRSGs are not capable of operating independently from the CTGs.	Good combustion practices, inlet air conditioning and the use of pipeline quality natural gas.	16	LB/H	HOURLY; EACH UNIT	12.2	LB/H	HOURLY; EACH UNIT W/O DUCT BURNER FIRING	0		
TX-0788	NECHES STATION	3/24/2016	Combined Cycle &amp; Cogeneration	natural gas	231	MW	2 CTGs to operate in simple cycle & combined cycle modes. 231 MW (Siemens) or 210 MW (GE). Simple cycle operations limited to 2,500 hr/yr.	GOOD COMBUSTION PRACTICES AND LOW SULFUR FUEL	19.35	LB/H		0			0		
TX-0789	DECORDOVA STEAM ELECTRIC STATION	3/8/2016	Combined Cycle & Cogeneration	natural gas	231	MW	2 CTGs to operate in simple cycle & combined cycle modes. 231 MW (Siemens) or 210 MW (GE). Simple cycle operations limited to 2,500 hr/yr.	GOOD COMBUSTION PRACTICES AND LOW SULFUR FUEL	35.47	LB/H		0			0		
TX-0790	PORT ARTHUR LNG EXPORT TERMINAL	2/17/2016	Refrigeration Compression Turbines	natural gas	10	M TONNES/YR	Four GE Frame 7E gas turbines for refrigeration and compression at the site		11.07	LB/H		42.15	T/YR		0		
TX-0790	PORT ARTHUR LNG EXPORT TERMINAL	2/17/2016	Simple Cycle Electrical Generation Gas Turbines 15.210	natural gas	34	MW	Nine GE PGT25-G4 gas turbines for electrical generation at the site at 34 MW/turbine	Equipment specifications & work practices - Good combustion practices and use of low carbon, low sulfur fuel	2.32	LB/H		8.84	T/YR		0		
TX-0817	CHOCOLATE BAYOU STEAM GENERATING (CBSG) STATION	2/17/2017	Combined Cycle Cogeneration	NATURAL GAS	50	MW	2 UNITS EACH 50 MW GE LM6000		6.98	LB/H		0			0		
*TX-0834	MONTGOMERY COUNTY POWER STATION	3/30/2018	Combined Cycle Turbine	NATURAL GAS	2635	MMBTU/HR/UNIT	Two Mitsubishi M501GAC turbines (without fast start)	PIPELINE NATURAL GAS, GOOD COMBUSTION	125.7	TON/YR		0			0		
*VA-0325	GREENSVILLE POWER STATION	6/17/2016	COMBUSTION TURBINE GENERATOR WITH DUCT-FIRED HEAT RECOVERY STEAM GENERATORS (3)	natural gas	3227	MMBTU/HR	3227 MMBTU/HR CT with 500 MMBTU/HR Duct Burner, 3 on 1 configuration.	Pipeline Quality Natural Gas	0.0039	LB/MMBTU	AVG OF 3 TEST RUNS	14.1	LB/H		0		
CA-1191	VICTORVILLE 2 HYBRID POWER PROJECT	3/11/2010	COMBUSTION TURBINE #2 (NORMAL OPERATION, NO DUCT BURNING)	NATURAL GAS	154	MW	154 MW Combined Cycle Combustion Turbine Generator	PUC QUALITY NATURAL GAS	12	lb/hr	12-MONTH ROLLING AVG (NO DUCT BURNING)	0			0		
CA-1191	VICTORVILLE 2 HYBRID POWER PROJECT	3/11/2010	COMBUSTION TURBINE #1 (NORMAL OPERATION, NO DUCT BURNING)	Natural Gas	154	MW	154 MW Combined Cycle Combustion Turbine Generator	PUC QUALITY NATURAL GAS	12	lb/hr	12-MONTH ROLLING AVG (NO DUCT BURNING)	0			0		
CA-1192	AVENAL ENERGY PROJECT	6/21/2011	COMBUSTION TURBINE #1 (NORMAL OPERATION, NO DUCT BURNING)	NATURAL GAS	180	MW		USE PUC QUALITY NATURAL GAS	8.91	lb/hr	12-MONTH ROLLING AVG	0			0		
CA-1198	MORRO BAY POWER PLANT	9/25/2008	COMBUSTION TURBINE GENERATOR	NATURAL GAS	180	MW		USE PIPELINE QUALITY NATURAL GAS. OPERATE DUCT BURNERS NO MORE THAN 4000 HRS PER YEAR (12-MONTH ROLLING AVG BASIS)	11	lb/hr	6-HR ROLLING AVG (NO DUCT BURNING)	13.3	lb/hr	6-HR ROLLING AVG (W/ DUCT BURNING)	0		
CA-1212	PALMDALE HYBRID POWER PROJECT	10/18/2011	COMBUSTION TURBINES (NORMAL OPERATION)	NATURAL GAS	154	MW	TWO NATURAL GAS-FIRED COMBUSTION TURBINE-GENERATORS (CTGS) RATED AT 154 MEGAWATT (MW, GROSS) EACH, TWO HEAT RECOVERY STEAM GENERATORS (HRSG), ONE STEAM TURBINE GENERATOR (STG) RATED AT 267 MW, AND 251 ACRES OF PARABOLIC SOLAR-THERMAL COLLECTORS WITH ASSOCIATED HEAT-TRANSFER EQUIPMENT	USE PUC QUALITY NATURAL GAS	0.0048	LB/MMBTU	9-HR AVG (NO DUCT BURNING)	0.0049	LB/MMBTU	9-HR AVG (W/ DUCT BURNING)	0		
*CO-0073	PUEBLO AIRPORT GENERATING STATION	7/22/2010	Four combined cycle combustion turbines	natural gas	373	mmBtu/hr	Three GE, LMS6000 PF, natural gas-fired, combined cycle CTG, rated at 373 MMBtu per hour each, based on HHV and one (1) HRSG each with no Duct Burners	Use of pipeline quality natural gas and good combustor design	4.3	lb/hr	AVE OVER STACK TEST LENGTH	0			0		
DE-0024	GARRISON ENERGY CENTER	1/30/2013	Unit 1	Natural Gas	2260	million BTUs		Fuel Usage Restriction to natural gas and low sulfur distillate oil	120.4	TONS	12 MONTH ROLLING AVERAGE	0			0		
*IA-0107	MARSHALLTOWN GENERATING STATION	4/14/2014	Combustion turbine #1 - combined cycle	natural gas	2258	mmBtu/hr	two identical Siemens SGT6-5000F combined cycle turbines without duct firing, each at 2258 mmBtu/hr generating approx. 300 MW each.		0.01	LB/MMBTU	AVG. OF 3 ONE HOUR TEST RUNS	77.1	TON/YR	12-MONTH ROLLING AVERAGE OF 3 ONE-HOUR TEST RUNS	0		
*IA-0107	MARSHALLTOWN GENERATING STATION	4/14/2014	Combustion turbine #2 -combined cycle	natural gas	2258	mmBtu/hr			0.01	LB/MMBTU		77.1	TON/YR		0		
IA-0254	NINEMILE POINT ELECTRIC GENERATING PLANT	8/16/2011	COMBINED CYCLE TURBINE GENERATORS (UNITS 6A &amp; 6B)	NATURAL GAS	7146	MMBTU/H	TURBINES ALSO PERMITTED TO BURN NO. 2 FUEL OIL AND ULTRA LOW SULFUR DIESEL. FUEL OIL USE IS LIMITED TO 1000 HOURS PER YEAR.	WHILE FIRING NATURAL GAS: USE OF PIPELINE QUALITY NATURAL GAS AND GOOD COMBUSTION PRACTICES  WHILE FIRING FUEL OIL: USE OF ULTRA LOW SULFUR FUEL OIL AND GOOD COMBUSTION PRACTICES	26.23	lb/hr	HOURLY AVERAGE W/O DUCT BURNER	33.16	lb/hr	HOURLY AVERAGE W/ DUCT BURNER	0		
IA-0257	SABINE PASS LNG TERMINAL	12/6/2011	Combined Cycle Refrigeration Compressor Turbines (8)	natural gas	286	MMBTU/H	GE LM2500-G4	Good combustion practices and fueled by natural gas	2.08	lb/hr	HOURLY MAXIMUM	0			0		
IA-0256	COGENERATION PLANT	12/6/2011	COGENERATION TRAINS 1-3 (1-10, 2-10, 3-10)	NATURAL GAS	475	MMBTU/H	EACH COGEN TRAIN CONSISTS OF A 50 MW GE LM6000 PF SPRINT TURBINE AND A HEAT RECOVERY STEAM GENERATOR EQUIPPED WITH A 70 MM BTU/HR DUCT BURNER.	USE OF NATURAL GAS AS FUEL AND GOOD COMBUSTION PRACTICES	3.72	lb/hr	HOURLY MAXIMUM	0			0		

**Table D-A-12**  
**Particulate Matter 2.5 microns(PM) RBLC Search - Combustion Turbines Firing Natural Gas (Without Duct Burning)**  
**Invenenergy, LLC - Allegheny County Energy Center Project**

RBL CID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
*MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014	2 COMBINED CYCLE COMBUSTION TURBINES, WITHOUT DUCT FIRING	NATURAL GAS	270	MW		EXCLUSIVE USE OF PIPELINE QUALITY NATURAL GAS AND EFFICIENT TURBINE DESIGN	25.1	lb/hr	AVERAGE OF 3 STARTUP TEST RUNS	0			0		
*MI-0402	SUMPTER POWER PLANT	11/17/2011	Combined cycle combustion turbine w/ HRSG	Natural gas	130	MW electrical output	This is a combined-cycle combustion turbine with a non-fired heat recovery steam generator (HRSG). Natural gas-fired combustion turbine conversion to combined-cycle. Throughput is 2,237 MMBTU/H for each CTG		0.0066	LB/MMBTU	TEST	7.4	lb/hr	TEST	0		
*MI-0405	MIDLAND COGENERATION VENTURE	4/23/2013	Natural gas fueled combined cycle combustion turbine generators (CTG) with HRSG	Natural gas	2237	MMBTU/H	Equipment is permitted as following flexible group (FG): FG-CTG1-2: Two natural gas fired CTGs with each turbine containing a heat recovery steam generator (HRSG) to operate in combined cycle. The two CTGs (with HRSG) are connected to one steam turbine generator. Each CTG is equipped with a dry low NOx (DLN) burner and a selective catalytic reduction (SCR) system.	Good combustion practices USE OF CLEAN FUELS, NATURAL GAS AND ULTRA LOW SULFUR DISTILLATE OIL	0.006	LB/MMBTU	EACH CTG; TEST PROTOCOL (PM only)	0.012	LB/MMBTU	EACH CTG; TEST PROTOCOL	0		
NI-0074	WEST DEPTFORD ENERGY	5/6/2009	TURBINE, COMBINED CYCLE	NATURAL GAS	17298	MMBT3/YR			18.66	lb/hr		0			0		
*PA-0296	BERKS HOLLOW ENERGY ASSOC LLC/ONTELAUNEE	12/17/2013	Turbine, Combined Cycle, #1 and #2	Natural Gas	3046	MMBTu/hr	Four GE 7FA combined cycle turbines, dry low NOx burners and selective catalytic reduction. These limits are for each of the 4 turbines individually, while operating with the duct burners on. This permit is a modification to RBLC OH-0252 to remove hourly restrictions on duct burners.		48.56	TPY	12-MONTH ROLLING TOTAL	10	lb/hr		0		
TX-0590	KING POWER STATION	8/5/2010	Turbine	natural gas	1350	MW	The plant will be designed to generate 1,350 nominal megawatts of power. There are two configuration scenarios: either four Siemens SGT6-5000F CTGs in combined-cycle mode (Scenario A) or four GE Frame 7FA CTGs in combined cycle mode (Scenario B). Scenario B also includes one or two auxiliary boilers.	use low ash fuel (natural gas or low sulfur diesel as a backup) and good combustion practices	11.1	lb/hr		19.8	lb/hr		0		
TX-0600	THOMAS C. FERGUSON POWER PLANT	9/1/2011	Natural gas-fired turbines	natural gas	390	MW	(2) GE7FA at 195 MW each. (1) steam turbine at 200 MW. Each turbine is equipped with an unfired heat recovery steam generator (HRSG), which provides steam for the steam turbine.	pipeline quality natural gas	33.43	lb/hr	1-H	0			0		
TX-0620	ES JOSLIN POWER PLANT	9/12/2012	Combined cycle gas turbine	natural gas	195	MW	The three combustion turbine generators (CTG) will be the General Electric 7FA, each with a maximum base-load electric power output of approximately 195 megawatts (MW). The steam turbine is rated at approximately 235 MW. This project also includes the installation of two emergency generators, one fire water pump, and auxiliary equipment. No duct burners.		18	lb/hr	PER TURBINE	0			0		
*TX-0660	FGT TEXAS POWER I AND FGT TEXAS POWER II	3/24/2014	Alstom Turbine	Natural Gas	230.7	MW	Four (4) Alstom GT24 CTGs, each with a HRSG and DBs, max design capacity 409 MMBtu/hr	Low sulfur fuel, good combustion practices	2	PPMVD		0			0		
*TX-0678	FREEPORT LNG PRETREATMENT FACILITY	7/16/2014	Combustion Turbine	natural gas	87	MW	The exhaust heat from the turbine will be used to heat a heating medium which is used to regenerate rich amine from the acid gas removal system.		15.22	lb/hr		0			0		
*TX-0689	CEDAR BAYOU ELECTRIC GENERATION STATION	8/29/2014	Combined cycle natural gas turbines (4) cogeneration	Natural Gas	225	MW		Good combustion practices, natural gas	0			0			0		
*TX-0698	BAYPORT COMPLEX	9/5/2013	natural gas-fired combined cycle turbines	natural gas	90	MW	(4) GE 7EA turbines providing power and process steam		0			0			0		
*TX-0709	SAND HILL ENERGY CENTER	9/13/2013	Natural Gas	173.9	MW				0			0			0		
*TX-0712	TRINIDAD GENERATING FACILITY	11/20/2014	combined cycle turbine	natural gas	497	MW	The facility will consist of a Mitsubishi Heavy Industries (MHI) J model gas fired combustion turbine nominally rated at 497 megawatts (MW) equipped with a HRSG and DB with a maximum design capacity of 402 million British thermal units per hour (MMBTu/hr). The gross nominal output of the CTG with HRSG and DB is 530 MW.		0			0			0		
*TX-0730	COLORADO BEND ENERGY CENTER	4/1/2015	Combined-cycle gas turbine electric generating facility	natural gas	1100	MW	combined cycle power plant that uses two combustion turbines and one steam turbine, model GE 7HA.02	efficient combustion, natural gas fuel	43	lb/hr		0			0		
VA-0315	WARREN COUNTY POWER PLANT - DOMINION	12/17/2010	COMBINED CYCLE TURBINE &amp; DUCT BURNER, 3	Natural Gas	2996	MMBTU/H	Emissions are for one of three units (Mitsubishi natural gas-fired combustion turbine (CT) generator Model M501 GAC).	Natural Gas only, fuel has maximum sulfur content of 0.0003% by weight.	8	lb/hr	3 HR. AVG. (WITH DUCT BURNER FIRING)	14	lb/hr	3 HR. AVG. (WITH DUCT BURNER FIRING)	0		
VA-0319	GATEWAY COGENERATION 1, LLC - SMART WATER PROJECT	8/27/2012	COMBUSTION TURBINES, (2) COMBUSTION TURBINE GENERATORS, (3)	Natural Gas	593	MMBTU/H	Burns primarily natural gas but has the capacity to burn up to 500 hours of ultra low sulfur diesel fuel (ULSD) as backup.	Clean burning fuels and good combustion practices	5	lb/hr	3 H AVG	0			0		
*VA-0321	BRUNSWICK COUNTY POWER STATION	3/12/2013	Combined Cycle Turbine (EP02)	Natural Gas	3442	MMBTU/H	Three (3) Mitsubishi M501 GAC combustion turbine generators with HRSG duct burners (natural gas-fired).	Low sulfur/carbon fuel and good combustion practices	0.0033	LB/MMBTU	3 H AVG WITHOUT DUCT BURNING	9.7	lb/hr	3 H AVG WITHOUT DUCT BURNING CALENDAR YEAR	0		
*WY-0070	CHEYENNE PRAIRIE GENERATING STATION	8/28/2012	Footprint Power Salem Harbor Development LP	Natural Gas	346	MW		good combustion practices	4	lb/hr	1-hr average; Duct Burners Off	0.0071	lb/MMBTu	1-hr average; Duct Burners Off	0		
	Footprint Power Salem Harbor Development LP		Combustion Turbine	Natural Gas	346	MW		Clean Fuel	8.8	lb/hr	1-hr average; Duct Burners Off						
	PacifiCorp Energy		Block 1 CT	Natural Gas				Clean Fuel	0.041	lb/MW-hr	30-day rolling average						
	PacifiCorp Energy		Block 2 CT	Natural Gas	629	MW			10.8	lb/hr	30-day rolling average						
	Pioneer Valley Woodbridge Energy Center (CPV Shore, LLC)		Combustion Turbine	Natural Gas	387	MW			14	lb/hr							
	Hummel Station LLC		Combustion Turbine	Natural Gas	2,254.00	MMBTu/hr			0.004	lb/MMBTu							
	Cricket Valley Energy Center		Combustion Turbine	Natural Gas	2,307	MMBTu/hr			12.1	lb/hr							
	Gibson County Generation, LLC		Combustion Turbine	Natural Gas	1000	MW		Combusting commercially available, pipeline natural gas in the turbines and duct burners	14	lb/hr							
	Pioneer Valley Energy Center		Combustion Turbine	Natural Gas	417	MW			0.006	lb/MMBTu	1-hr average						
	Russell City Energy Company, LLC		Combustion Turbine	Natural Gas	2542	MMBTu/hr			0.0088	lb/MMBTu	24-hr average						
	Tenaska Partners LLC		Combustion Turbine	Natural Gas	2038.6	MMBTu/hr			0.004	lb/MMBTu		9.8	lb/hr				
	UGI Development Co/ Hunlock Creek		Combustion Turbine	Natural Gas	3147	MMBTu/hr			7.5	lb/hr		0.0036	lb/MMBTu				
	Huntington Beach Energy Project		Combustion Turbine	Natural Gas	3147	MMBTu/hr			11.8	lb/hr		0.0039	lb/MMBTu				
	Hess Newark Energy Center		Combustion Turbine	Natural Gas	471.2	MMBTu/hr			0.0141	lb/MMBTu							
	York Energy Center Block 2	6/15/2015	Combustion Turbine	Natural Gas	939	MW (net)			4.5	lb/hr							
	York Energy Center Block 2	6/15/2015	Combustion Turbine	Natural Gas	2320	MMBTu/hr			11	lb/hr	average of 3 test runs						
	York Energy Center Block 2	6/15/2015	Combustion Turbine	Natural Gas	2512.5	MMBTu/hr	firing NG without duct burner		10.7	lb/hr							

**Table D-A-13**  
**Sulfur Dioxide (SO2) RBLC Search - Combustion Turbines Firing Natural Gas (With Duct Burning)**  
**Invenergy, LLC - Allegheny County Energy Center Project**

RBL CID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION	
FL-0263	FPL TURKEY POINT POWER PLANT	2/8/2005	170 MW COMBUSTION TURBINE, 4 UNITS	NATURAL GAS	170	MW	GENERATING CAPACITY: EACH OF THE FOUR GAS TURBINES HAS A NOMINAL GENERATING CAPACITY OF 170 MW FOR GAS FIRING (180 MW FOR OIL FIRING). EACH OF THE FOUR HEAT RECOVERY STEAM GENERATORS (HRSGS) PROVIDES STEAM TO THE SINGLE STEAM TURBINE ELECTRICAL GENERATOR, WHICH HAS A NOMINAL CAPACITY OF 470 MW. THE TOTAL NOMINAL GENERATING CAPACITY OF THE 4-ON-1 COMBINED CYCLE UNIT IS 1150 MW.  FUELS: EACH GAS TURBINE WILL FIRE NATURAL GAS AS THE PRIMARY FUEL AND ULTRA LOW SULFUR (0.0015% SULFUR) DISTILLATE OIL AS A RESTRICTED ALTERNATE FUEL. EMISSIONS OF ALL POLLUTANTS INCREASE WITH THE FIRING OF OIL. THE APPLICANT REQUESTS 500 HOURS PER YEAR PER GAS TURBINE (OR EQUIVALENT) FOR OIL FIRING.  MODES OF OPERATION: STANDARD NORMAL OPERATION, WITH DUCT BURNER, POWER AUGMENTATION AND PEAKING.	EMISSIONS OF SAM AND SO2 WILL BE MINIMIZED BY FIRING NATURAL GAS AND RESTRICTING THE AMOUNTS OF ULTRA LOW SULFUR DISTILLATE OIL.	2	GR S/100 SCF GAS			0.0015	% S		0		NOT AVAILABLE
FL-0285	PROGRESS BARTOW POWER PLANT	1/26/2007	COMBINED CYCLE COMBUSTION TURBINE SYSTEM (4-ON-1)	NATURAL GAS	1972	MMBTU/H	1876 MMBTU/HR WHEN FIRING DISTILLATE FUEL OIL. THE SYSTEM NOMINAL CAPACITY 1280 MW. EACH UNIT NOMINAL CAPACITY 215 MW (ISO) WITH DUCT-FIRED HEAT RECOVERY STEAM GENERATOR. 2117 MMBTU/HR FUEL OIL.		2	GR S/100 SCF GAS	NATURAL GAS		0.05	% S	FUEL OIL BY WEIGHT	0		
FL-0286	FPL WEST COUNTY ENERGY CENTER	1/10/2007	COMBINED CYCLE COMBUSTION GAS TURBINES - 6 UNITS	NATURAL GAS	2333	MMBTU/H	EACH COMBINED CYCLE UNIT SYSTEM (TWO & 3-ON-1& ) WILL CONSIST OF: THREE NOMINAL 250 MEGAWATT MODEL 501G GAS TURBINE-ELECTRICAL GENERATOR SETS WITH EVAPORATIVE INLET COOLING SYSTEMS, THREE SUPPLEMENTARY-FIRED HEAT RECOVERY STEAM GENERATORS (HRSGs) WITH SCR REACTORS; ONE NOMINAL 428 MMBTU/HOUR (LHV) GAS-FIRED DUCT BURNER LOCATED WITHIN EACH OF THE THREE HRSGs, THREE 149 FEET EXHAUST STACKS, ONE 26 CELL MECHANICAL DRAFT COOLING TOWER, AND A COMMON NOMINAL 500 MW STEAM-ELECTRICAL GENERATOR.	LOW SULFUR FUELS	2	GR S/100 SCF GAS			0.0015	% S		0		
*IL-0112	NELSON ENERGY CENTER	12/28/2010	Electric Generation Facility	Natural Gas	220	MW each	Two combined cycle combustion turbines followed by HRSGs with capability for supplemental fuel firing in HRSG for each combustion turbine using duct burners.		0.0062	LB/MMBTU	HOURLY AVERAGE		0		0			
*IN-0158	ST. JOSEPH ENERGY CENTER, LLC	12/3/2012	FOUR (4) NATURAL GAS COMBINED CYCLE COMBUSTION TURBINES	NATURAL GAS	2300	MMBTU/H	EACH TURBINE IS EQUIPPED WITH DRY LOW NOX BURNERS, NATURAL GAS FIRED DUCT BURNERS, AND A HEAT RECOVERY STEAM GENERATOR IDENTIFIED AS HRSG#. NOX EMISSIONS CONTROLLED BY SELECTIVE CATALYTIC REDUCTION SYSTEMS (SCR#) ALONG WITH CO AND VOC EMISSIONS CONTROLLED BY OXIDATION CATALYST SYSTEMS (CAT#) IN EACH TURBINE. EACH STACK HAS CONTINUOUS EMISSIONS MONITORS FOR NOX AND CO. COMBINED NOMINAL POWER OUTPUT IS 1350 MW.	FUEL SPECIFICATION	0.75	GR S/100 SCF GAS			0		0			
LA-0136	PLAQUEMINE COGENERATION FACILITY	7/23/2008	(4) GAS TURBINES/DUCT BURNERS	NATURAL GAS	2876	MMBTU/H	VISUAL INSPECTION FOR OPACITY ON A WEEKLY BASIS, STACK TESTS FOR PM, NOX, SO2, OPACITY, CO	LOW SULFUR FUELS WITH MAXIMUM SULFUR CONTENT OF 5 GR/100 SCF.		40.7	lb/hr	HOURLY MAXIMUM	53.7	T/YR	ANNUAL MAXIMUM	3.3	PPMVD @ 15% O2	
LA-0224	ARSENAL HILL POWER PLANT	3/20/2008	TWO COMBINED CYCLE GAS TURBINES	NATURAL GAS	2110	MMBTU/H	CTG-1 TURBINE/DUCT BURNER (EQ0102) CTG-2 TURBINE/DUCT BURNER (EQ0103)	USE LOW-SULFUR PIPELINE-QUALITY NATURAL GAS AS FUEL	12.06	lb/hr	MAX		0		0			
*MA-0039	SALEM HARBOR STATION REDEVELOPMENT	1/30/2014	Combustion Turbine with Duct Burner	Natural Gas	2449	MMBTU/hr	two 315 MW (nominal) GE Energy 7F Series 5 Rapid Response Combined Cycle Combustion Turbines with Duct Burners and 31 MW (estimated) steam turbine generators		0.3	PPMVD	1 HR AVG. DOES NOT APPLY DURING SS	0.0015	LB/MMBTU	1 HR AVG. DOES NOT APPLY DURING SS	0			
*MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014	2 COMBINED CYCLE COMBUSTION TURBINES WITH DUCT FIRING	NATURAL GAS	1000	MW	TWO MITSUBISHI & GE Energy 7F Series 5 Rapid Response Combined Cycle Combustion Turbines with Duct Burners and 31 MW (estimated) steam turbine generators	EXCLUSIVE USE OF PIPELINE QUALITY NATURAL GAS AND EFFICIENT TURBINE DESIGN	8.2	lb/hr	3-HOUR BLOCK AVERAGE		0		0			
*NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITH DUCT BURNER - SIEMENS	Natural Gas	33691	MMBTU/HR	Natural Gas Usage <= 33,691 MMBtu/3yr per 365 consecutive day period, rolling one day basis (per two Siemens turbines and two associated duct burners) The heat input rate of the Siemens turbine will be 2,356 MMBtu/hr (HHV) with a 62.1 duct burner MMBtu/hr (HHV).	Use of natural gas as a clean burning fuel	5.1	lb/hr	AVERAGE OF THREE ONE HOUR TESTS		0		0			
*NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITH DUCT BURNER - GENERAL ELECTRIC	Natural gas	33691	MMCF/year	Natural Gas Usage <= 33,691 MMBtu/3yr per 365 consecutive day period, rolling one day basis (per two turbines and two duct burners) The heat input rate of each General Electric combustion each turbine will be 2,312 MMBtu/hr (HHV) with a 164.4 MMBtu/hr duct burner	Use of natural gas only as a clean burning fuel	5.2	lb/hr	AVERAGE OF THREE ONE HOUR TESTS		0		0			
*NJ-0082	WEST DEPTFORD ENERGY STATION	7/18/2014	Combined Cycle Combustion Turbine with Duct Burner	NATURAL GAS	20282	MMCF/YR	This is a 427 MW Siemens Combined Cycle Turbine with duct burner Heat Input rate of the turbine = 2276 MMBtu/hr (HHV) Heat Input rate of the Duct burner= 777 MMBtu/hr (HHV)	Use of natural gas as a clean burning fuel	6.56	lb/hr	AVERAGE OF THREE ONE HOUR TESTS		0		0			
NY-0095	CATTHINES BELLPORT ENERGY CENTER	5/10/2006	COMBUSTION TURBINE	NATURAL GAS	2221	MMBTU/H	The fuel use of 20,282 MMCF/YR for three turbines and three Duct burners.	LOW SULFUR FUEL	0.0011	LB/MMBTU			0		0			
*OH-0352	OREGON CLEAN ENERGY CENTER	6/18/2013	2 Combined Cycle Combustion Turbines-Siemens, with duct burners	Natural Gas	51560	MMSCF/rolling 12-MO	COMBINED CYCLE WITH DUCT FIRING UP TO 494 MMBTU/H. Two Siemens 2932 MMBtu/H combined cycle combustion turbines, both with 300 MMBtu/H duct burners, with dry low NOx combustors, SCR, and catalytic oxidizer. Will install either 2 Siemens or 2 Mitsubishi, not both (not determined). Short term limits are different with and without duct burners. This process with duct burners.	low sulfur fuel, only burning natural gas with 0.5 GR/100 SCF	0.0014	LB/MMBTU		34.2	T/YR	PER ROLLING 12-MONTHS	0			
MI-0423	INDECK NILES, LLC	01/04/2017 & 03/04/2017	PGCTGHRSG (2 Combined Cycle CTGs with HRSGs)	Natural gas	8322	MMBTU/H	There are 2 combined cycle natural gas-fired combustion turbine generators (CTGs) with heat recovery steam generators (HRSG) identified as EUCGTHRS01 & EUCGTHRS02 in the flexible group PGCTGHRSG. The total hours for startup and shutdown for each train shall not exceed 500 hours per 12-month rolling time period.	Good Combustion Practices and the use of pipeline quality natural gas.	11.7	LB/H	TEST PROTOCOL WILL SPECIFY AVG TIME	0.06	LB/MMBTU	TEST PROTOCOL WILL SPECIFY AVG TIME	0			
*MI-0432	NEW COVERT GENERATING FACILITY	07/30/2018 & 08/01/2018	FG-TURBIDBI-3 (3 combined cycle combustion turbine and heat recovery steam generator trains)	Natural gas	1230	MW	The throughput capacity is 3421 MMBTU/H for each turbine, and 740 MMBTU/H for each duct burner for a combined throughput of 4161 MMBTU/H or 8322 MMBTU/H for both trains.	Use of clean fuel (natural gas) with a fuel sulfur limit of 0.8 grains per 100 standard cubic feet of natural gas.	0.8	GR/100 SCF	NAT.GAS BURNED IN FG-TURBIDBI-3	0.06	LB/MMBTU	HOURLY; EACH CT-HRSG TRAIN; NSPS KKKK	0			

[illegible]

**Table D-A-14**  
**Sulfur Dioxide (SO<sub>2</sub>) RBLC Search - Combustion Turbines Firing Natural Gas (Without Duct Burning)**  
**Invenergy, LLC - Allegheny County Energy Center Project**

RBL CID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
FL-0356	OKEECHOBEE CLEAN ENERGY CENTER	3/9/2016	Combined-cycle electric generating unit	Natural gas	3096	MMBtu/hr per turbine	3-on-1 combined cycle unit. GE 7HA.02 turbines, approximately 350 MW per turbine. Total unit generating capacity is approximately 1,600 MW. Primarily fueled with natural gas. Permitted to burn the base-load equivalent of 500 hr/yr per turbine on ULSD.	Use of low-sulfur fuels		GR. S/100 SCF 2 GAS	FOR NATURAL GAS	0.0015	% S IN ULSD	FOR ULSD		0	
*FL-0363	DANIA BEACH ENERGY CENTER	12/4/2017	2-on-1 combined cycle unit (GE 7HA)	Natural gas	4000	MMBtu/hr	Two nominal 430 MW combustion turbines, coupled to a steam turbine generator	Clean fuels		0			0			0	
TX-0788	NECHES STATION	3/24/2016	Combined Cycle &amp; Cogeneration	natural gas	231	MW	2 CTGs to operate in simple cycle & combined cycle modes. 231 MW (Siemens) or 210 MW (GE). Simple cycle operations limited to 2,500 hr/yr.	GOOD COMBUSTION PRACTICES, LOW SULFUR FUEL	1	GR/100 SCF	HOURLY	0.25	GR/100 SCF	ANNUAL AVERAGE		0	
TX-0789	DECORDOVA STEAM ELECTRIC STATION	3/8/2016	Combined Cycle &amp; Cogeneration	natural gas	231	MW	2 CTGs to operate in simple cycle & combined cycle modes. 231 MW (Siemens) or 210 MW (GE). Simple cycle operations limited to 2,500 hr/yr.	GOOD COMBUSTION PRACTICES AND LOW SULFUR FUEL	5	GR/100 SCF	HOURLY		1 GR/100 SCF	ANNUAL		0	
TX-0790	PORT ARTHUR LNG EXPORT TERMINAL	2/17/2016	Refrigeration Compression Turbines	natural gas	10	M TONNES/YR	Four GE Frame 7E gas turbines for refrigeration and compression at the site	Dry low NOx burners, good combustion practices, pipeline quality sweet natural gas fuel (low sulfur fuel)	5	GR/100 SCF		0				0	
TX-0790	PORT ARTHUR LNG EXPORT TERMINAL	2/17/2016	Simple Cycle Electrical Generation Gas Turbines 15-210	natural gas	34	MW	Nine GE PGT25+G4 gas turbines for electrical generation at the site at 34 MW/turbine	Equipment specifications & work practices - Good combustion practices and use of low carbon, low sulfur fuel	2.96	LB/H			1.88 T/YR			0	
TX-0819	GAINES COUNTY POWER PLANT	4/28/2017	Combined Cycle Turbine with Heat Recovery Steam Generator, fired Duct Burners, and Steam Turbine Generator	NATURAL GAS	426	MW	Four Siemens SGT6-5000F5 natural gas fired combustion turbines with HRSGs and Steam Turbine Generators	Pipeline quality natural gas	1.54	GR/100 DSCF		0				0	
*TX-0834	MONTGOMERY COUNTY POWER STATION	3/30/2018	Combined Cycle Turbine	NATURAL GAS	2635	MMBTU/HR/UNIT	Two Mitsubishi M501GAC turbines (without fast start)	PIPELINE QUALITY NATURAL GAS	1	GR/100 DSCF		0				0	
FL-0263	FPL TURKEY POINT POWER PLANT	2/8/2005	170 MW COMBUSTION TURBINE, 4 UNITS	NATURAL GAS	170	MW	GENERATING CAPACITY: EACH OF THE FOUR GAS TURBINES HAS A NOMINAL GENERATING CAPACITY OF 170 MW FOR GAS FIRING (180 MW FOR OIL FIRING). EACH OF THE FOUR HEAT RECOVERY STEAM GENERATORS (HRSGS) PROVIDES STEAM TO THE SINGLE STEAM TURBINE ELECTRICAL GENERATOR, WHICH HAS A NOMINAL CAPACITY OF 470 MW. THE TOTAL NOMINAL GENERATING CAPACITY OF THE 4-ON-1 COMBINED CYCLE UNIT IS 1150 MW.  FUELS: EACH GAS TURBINE WILL FIRE NATURAL GAS AS THE PRIMARY FUEL AND ULTRA LOW SULFUR (0.0015% SULFUR) DISTILLATE OIL AS A RESTRICTED ALTERNATE FUEL. EMISSIONS OF ALL POLLUTANTS INCREASE WITH THE FIRING OF OIL. THE APPLICANT REQUESTS 500 HOURS PER YEAR PER GAS TURBINE (OR EQUIVALENT) FOR OIL FIRING.  MODES OF OPERATION: STANDARD NORMAL OPERATION, WITH DUCT BURNER, POWER AUGMENTATION AND PEAKING.	EMISSIONS OF SAM AND SO2 WILL BE MINIMIZED BY FIRING NATURAL GAS AND RESTRICTING THE AMOUNTS OF ULTRA LOW SULFUR DISTILLATE OIL.	GR S/100 SCF 2 GAS		0.0015	% S		0		NOT AVAILABLE	
FL-0265	HINES POWER BLOCK 4	6/8/2005	COMBINED CYCLE TURBINE	NATURAL GAS	530	MW		CLEAN FUELS	2	GR S/100 SCF GAS	CONTINUOUS	0.05	% S	CONTINUOUS		0	
FL-0285	PROGRESS BARTOW POWER PLANT	1/26/2007	COMBINED CYCLE COMBUSTION TURBINE SYSTEM (4-ON-1)	NATURAL GAS	1972	MMBTU/H	1876 MMBTU/HR WHEN FIRING DISTILLATE FUEL OIL. THE SYSTEM NOMINAL CAPACITY 1280 MW. EACH UNIT NOMINAL CAPACITY 215 MW (ISO) WITH DUCT-FIRED HEAT RECOVERY STEAM GENERATOR.		2	GR S/100 SCF GAS	NATURAL GAS	0.05	% S		FUEL OIL BY WEIGHT	0	
FL-0304	CANE ISLAND POWER PARK	9/8/2008	300 MW COMBINED CYCLE COMBUSTION TURBINE	NATURAL GAS	1860	MMBTU/H		FUEL SPECIFICATIONS.	2	GR S/100 SCF GAS		0				0	
FL-0337	POLK POWER STATION	10/14/2012	Combine cycle power block (4 on 1)	natural gas	1160	MW	Basis for the emission standard is either NSPS Subpart KKKK or Department BACT determinations. The BACT emission standards for NOx while operating in combined cycle are more stringent than the corresponding Subpart KKKK emissions standards of 15 and 42 ppmvd @15% O2 on a 30-day rolling average for natural gas and fuel oil, respectively. EACH TURBINE IS EQUIPPED WITH DRY LOW NOX BURNERS, NATURAL GAS FIRED DUCT BURNERS, AND A HEAT RECOVERY STEAM GENERATOR IDENTIFIED AS HRSG#. NOX EMISSIONS CONTROLLED BY SELECTIVE CATALYTIC REDUCTION SYSTEMS (SCR#) ALONG WITH CO AND VOC EMISSIONS CONTROLLED BY OXIDATION CATALYST SYSTEMS (CAT#) IN EACH TURBINE. EACH STACK HAS CONTINUOUS EMISSIONS MONITORS FOR NOX AND CO. COMBINED NOMIAL POWER OUTPUT IS 1,350 MW.		GR S/100 SCF 2 GAS		0.0015	% S		0			
*IN-0158	ST. JOSEPH ENRGY CENTER, LLC	12/3/2012	FOUR (4) NATURAL GAS COMBINED CYCLE COMBUSTION TURBINES	NATURAL GAS	2300	MMBTU/H		FUEL SPECIFICATION	0.75	GAS		0				0	
LA-0192	CRESCENT CITY POWER	6/6/2005	GAS TURBINES - 187 MW (2)		2006	MMBTU/H		USE OF LOW SULFUR NATURAL GAS, 1.8 GRAINS PER 100 SCF	10.1	lb/hr	HOURLY MAXIMUM	44.2	T/YR	ANNUAL MAXIMUM		0	
*MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014	2 COMBINED CYCLE COMBUSTION TURBINES WITHOUT DUCT FIRING	NATURAL GAS	270	MW		EXCLUSIVE USE OF PIPELINE QUALITY NATURAL GAS	6.3	lb/hr	3-HOUR BLOCK AVERAGE	0				0	
NJ-0074	WEST DEPTFORD ENERGY	5/6/2009	TURBINE, COMBINED CYCLE	NATURAL GAS	17298	MMMT3/YR		USE OF CLEAN FUELS, NATURAL GAS AND ULTRA LOW SULFUR DISTILLATE OIL	5.66	lb/hr		0				0	
*NJ-0082	WEST DEPTFORD ENERGY STATION	7/18/2014	Combined Cycle Combustion Turbine without Duct Burner	Natural Gas	20282	MMCF/YR	This is a 427 MW Siemens Combined Cycle Turbine with duct burner Heat Input rate of the turbine = 2276 MMBtu/hr (HHV) Heat Input rate of the Duct burner= 777 MMBtu/hr(HHV)	AVERAGE OF THREE ONE HOUR STACK TESTS	4.94	lb/hr		0				0	
*OH-0352	OREGON CLEAN ENERGY CENTER	6/18/2013	2 Combined Cycle Combustion Turbines-Siemens, without duct burners	Natural Gas	515600	MMSCF/rolling 12-months	The fuel use of 20,282 MMCF/YR is for three turbines and three Duct burner. Two Mitsubishi 2932 MMBtu/H combined cycle combustion turbines, both with 300 MMBtu/H duct burners, with dry low NOx combustors, SCR, and catalytic oxidizer. Will install either 2 Siemens or 2 Mitsubishi, not both (not determined). Short term limits are different with and without duct burners. This process without duct burners.	Use of natural gas a clean burning fuel	0.0014	LB/MMBTU		34.2	T/YR	PER ROLLING 12 MONTHS		0	
*OH-0352	OREGON CLEAN ENERGY CENTER	6/18/2013	2 Combined Cycle Combustion Turbines-Mitsubishi, without duct burners	Natural Gas	47917	MMSCF/rolling 12-MO	Two Mitsubishi 2932 MMBtu/H combined cycle combustion turbines, both with 300 MMBtu/H duct burners, with dry low NOx combustors, SCR, and catalytic oxidizer. Will install either 2 Siemens or 2 Mitsubishi, not both (not determined). Short term limits are different with and without duct burners. This process without duct burners.	low sulfur fuel, only burning natural gas with 0.5 GR/100 SCF	0.0014	LB/MMBTU		34.2	T/YR	PER ROLLING 12 MONTHS		0	
OK-0129	CHOUTEAU POWER PLANT	1/23/2009	COMBINED CYCLE COGENERATION &at25MW	NATURAL GAS	1882	MMBTU/H	SIEMENS V84.3A	NATURAL GAS FUEL	1.06	lb/hr	3-HRAVG	0				0	

**Table D-A-14**  
**Sulfur Dioxide (SO2) RBL Search - Combustion Turbines Firing Natural Gas (Without Duct Burning)**  
**Invenergy, LLC - Allegheny County Energy Center Project**

RBL CID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
TX-0516	CITY PUBLIC SERVICE JK SPRUCE ELECTRIC GENERATING UNIT 2	12/28/2005	SPRUCE POWER GENERATOR UNIT NO 2						2880	lb/hr		2102	T/YR		0		
TX-0600	THOMAS C. FERGUSON POWER PLANT	9/1/2011	Natural gas-fired turbines	natural gas	390	MW	(2) GE7FA at 195 MW each. (1) steam turbine at 200 MW. Each turbine is equipped with an unfired heat recovery steam generator (HRSG), which provides steam for the steam turbine.	pipeline quality natural gas	27.07	lb/hr	1-H	0			0		
*TX-0678	FREEPORT LNG PRETREATMENT FACILITY	7/16/2014	Combustion Turbine	natural gas	87	MW	The exhaust heat from the turbine will be used to heat a heating medium which is used to regenerate rich amine from the acid gas removal system.		3.68	lb/hr		0			0		
*TX-0730	COLORADO BEND ENERGY CENTER	4/1/2015	Combined-cycle gas turbine electric generating facility	natural gas	1100	MW	Four GE 7FA combined cycle turbines, dry low NOx burners and selective catalytic reduction. These limits are for each of the 4 turbines individually, while operating with the duct burners on. This permit is a modification to RBL OH-0252 to remove hourly restrictions on duct burners.	efficient combustion, natural gas fuel	GR S/100 SCF 2 GAS		1-HOUR	0.5	GR S/100 SCF GAS	ANNUAL	0		
*VA-0321	BRUNSWICK COUNTY POWER STATION	3/12/2013	COMBUSTION TURBINE GENERATORS, (3)	Natural Gas	3442	MMBTU/H	Three (3) Mitsubishi M501 GAC combustion turbine generators with HRSG duct burners (natural gas-fired).	Low sulfur fuel	0.0011	LB/MMBTU		0			0		
	Catoctin Power LLC		Combustion Turbine	Natural Gas	170	MW		Pipeline quality low sulfur NG	6.17	lb/hr	Monthly average	1	GR S/100 SCF GAS	Sulfur content			
	Footprint Power Salem Harbor Development LP		Combustion Turbine	Natural Gas	346	MW		Low Sulfur Fuels	3.5	lb/hr	1-hr average; Duct Burners Off	0.0015	lb/MMBtu	1-hr average; Duct Burners Off			
	Footprint Power Salem Harbor Development LP		Combustion Turbine	Natural Gas	346	MW		Low Sulfur Fuels	0.3	PPMVD	1-hr average; Duct Burners Off	0.01	LB/MWh	1-hr average; Duct Burners Off			
	Cricketer Valley Energy Center		Combustion Turbine	Natural Gas	1000	MW			0.0015	lb/MMBtu	1-hr average						
	Tenaska Partners LLC		Combustion Turbine	Natural Gas	3147	MMBTU/hr			2.7	lb/hr							
	UGI Development Co/ Hunlock Creek		Natural Gas		471.2	MMBTU/hr			0.003	lb/MMBtu							
	Hess Newark Energy Center		Combustion Turbine	Natural Gas	2320	MMBTU/hr			2.8	lb/hr							
	York Energy Center Block 1				1574	MMBTU/hr			0.003	lb/MMBtu	hourly basis						
	York Energy Center Block 2	6/15/2015			2512.5	MMBTU/hr	firing NG without duct burner		0.00149	lb/MMBtu							
	Calpine/Bethlehem Energy Center				122	MW			0.003	lb/MMBtu							





**Table D-A-15**  
**Sulfuric Acid (H<sub>2</sub>SO<sub>4</sub>) RBLC Search - Combustion Turbines Firing Natural Gas (With Duct Burning)**  
**Invenergy, LLC - Allegheny County Energy Center Project**

RBLCD	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
NC-0101	FORSYTH ENERGY PLANT	9/29/2005	TURBINE, COMBINED CYCLE, NATURAL GAS, (3)	NATURAL GAS	1844.3	MMBTU/H	Each of these units have a natural gas-fired heat recovery steam generator and a natural gas-fired duct burner. Each CT combusts natural gas as the primary fuel and very low-sulfur No. 2 fuel oil as a backup fuel. The use of fuel oil is limited to 1,200 hours per year and only during the months of November through March, and is listed as a separate process. These units are listed as a combined source (all three units) for each type of fuel.	VERY LOW-SULFUR FUEL (NATURAL GAS) OR NO. 2 FUEL OIL (0.015% SULFUR CONTENT BY WEIGHT)	0		SEE NOTE	0				0	
NC-0101	FORSYTH ENERGY PLANT	9/29/2005	TURBINE, DUCT BURNER, COMBINED CYCLE, NAT GAS, (3)	NATURAL GAS	1844.3	MMBTU/H	Each of these units have a natural gas-fired HRSG & a natural gas fired duct burner. Limits for this process are for turbines and duct burners.	USE OF LOW SULFUR FUEL (NATURAL GAS)	0		SEE NOTE	0				0	
*NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITH DUCT BURNER - SIEMENS	Natural Gas	33691	MMBtu/yr	Natural Gas Usage <= 33,691 MMBt/3yr per 365 consecutive day period, rolling one day basis (per two Siemens turbines and two associated duct burners) The heat input rate of the Siemens turbine will be 2,356 MMBtu/hr(HHV) with a 62.1 duct burner MMBtu/hr(HHV).	Use of natural gas a clean burning fuel	2.79	lb/hr		0				0	
*NJ-0081	PSEG FOSSIL LLC SEWAREN GENERATING STATION	3/7/2014	COMBINED CYCLE COMBUSTION TURBINE WITH DUCT BURNER - GENERAL ELECTRIC	Natural gas	33691	MMCU/yr	Natural Gas Usage <= 33,691 MMBt/3yr per 365 consecutive day period, rolling one day basis (per two turbines and two duct burners) The heat input rate of each General Electric combustion each turbine will be 2,312 MMBtu/hr(HHV) with a 164.4 MMBtu/hr duct burner This is a 429 MW Siemens Combined Cycle Turbine with duct burner Heat Input rate of the turbine = 2276 MMBtu/hr (HHV) Heat Input rate of the Duct burner= 777 MMBtu/hr(HHV)	Use of natural gas a clean burning fuel and a low sulfur fuel	2.93	lb/hr		0				0	
*NJ-0082	WEST DEPTFORD ENERGY STATION	7/18/2014	Combined Cycle Combustion Turbine with Duct Burner	Natural Gas	20282	MMCU/YR	The fuel use of 20,282 MMCF/YR is for three turbines and three Duct burners.	Use of natural gas a clean burning fuel	0.98	lb/hr		0				0	
NY-0095	CATHINES BELLPORT ENERGY CENTER	5/10/2006	COMBINED CYCLE WITH DUCT FIRING UP TO 494 MMBTU/H	NATURAL GAS	2221	MMBTU/H	Four GE 7FA combined cycle turbines, dry low NOx burners and selective catalytic reduction. These limits are for each of the 4 turbines individually, while operating with the duct burners on. This permit is a modification to RBLC OH-0252 to remove hourly restrictions on duct burners.	LOW-SULFUR FUEL	0.0004	LB/MMBTU		0				0	
*OH-0356	DUKE ENERGY HANGING ROCK ENERGY	12/18/2012	Turbines (4) (model GE 7FA) Duct Burners On	NATURAL GAS	172	MW		Burning natural gas in an efficient combustion turbine and using low sulfur fuel.	0.23	lb/hr		1.01	T/YR	PER ROLLING 12 MONTHS		0	
*OR-0050	TROUTDALE ENERGY CENTER, LLC	3/5/2014	Mitsubishi M501-GAC combustion turbine, combined cycle configuration with duct burner.	natural gas	2988	MMBtu/hr	or ULSD; Duct burner 499 MMBtu/hr, natural gas	Utilize only natural gas or ULSD fuel.	0			0				0	
PA-0278	MOXIE LIBERTY LLC/ASYLUM POWER PL T	10/10/2012	Combined-cycle Turbines (2) - Natural gas fired	Natural Gas	3277	MMBTU/H	Two combine cycle Turbines, each with a combustion turbine and heat recovery steam generator with duct burner. Each combined-cycle process will be rated at 468 MW or less. The heat input rating of each combustion gas turbine is 2990 MMBtu/hr (HHV) or less, and the heat input rating of each supplemental duct burner is equal to 387 MMBtu/hr (HHV) or less.		0.0002	LB/MMBTU		1.5	LB/H	468 MW POWERBLOCK		0	
*PA-0286	MOXIE ENERGY LLC/PATRIOT GENERATION PLT	1/31/2013	Combined Cycle Power Blocks 472 MW - (2)	Natural Gas	0		Two natural-gas-fired combined cycle powerblocks where each powerblock consists of a combustion turbine and heat recovery steam generator with duct burner.		0.0005	LB/MMBTU		2.4	T/YR	TOTAL PM - EACH UNIT		0	
*PA-0286	BERKS HOLLOW ENERGY ASSOC LLC/ONTELAUNEE	12/17/2013	Turbine, Combined Cycle, #1 and #2	Natural Gas	2046	MMBtu/hr	Equipped with SCR and Oxidation Catalyst		2.97	T/YR		0.87	lb/hr			0	
*PA-0288	FUTURE POWER PA/GOOD SPRINGS NGCC FACILITY	3/4/2014	Turbine, COMBINED CYCLE UNIT (Siemens 5000)	Natural Gas	2267	MMBtu/hr			3.4	lb/hr	WITH DUCT BURNER	14.3	T/YR	BASED ON A 12-MONTH ROLLING TOTAL		0	
TX-0497	INEOS CHOCOLATE BAYOU FACILITY	8/29/2006	COGENERATION TRAIN 2 AND 3 (TURBINE AND DUCT BURNER EMISSIONS)	NATURAL GAS	35	MW	GREEN POWER ONE WILL CONSIST OF TWO NOMINALLY RATED 35 MW GAS FIRED TURBINES AND TWO HEAT RECOVERY STEAM GENERATORS, EQUIPPED WITH 312 MMBTU/HR DUCT BURNERS. THE COMBUSTION TURBINES WILL ONLY BURN PIPELINE QUALITY SWEET NATURAL GAS. THE DUCT BURNERS WILL BURN NATURAL GAS, COMPLEX GAS OR MIXTURES OF NATURAL GAS AND COMPLEX GAS. STEAM PRODUCED IN THE HRSGS WILL BE USED IN THE CHOCOLATE BAYOU WORKS CHEMICAL COMPLEX. THE CHEMICAL COMPLEX WILL CONSUME APPROXIMATELY HALF OF THE ELECTRICAL OUTPUT PRODUCED BY THE TWO NEW TURBINES. EXCESS POWER PRODUCED BY THE COMBUSTION TURBINES WILL BE SOLD TO THE GRID.  THE EMISSIONS ARE PER TRAIN.	THE TURBINES WILL FIRE NATURAL GAS AND THE DUCT BURNERS WILL FIRE NATURAL GAS AND COMPLEX GAS WITH A SULFUR CONTENT LESS THAN FIVE GRAINS PER 100 STANDARD CUBIC FEET ON AN HOURLY BASIS	1.94	lb/hr		1.54	T/YR			0	
TX-0502	NACOGDOCHES POWER STERNE GENERATING FACILITY	6/5/2006	WESTINGHOUSE/ SIEMENS MODEL SW501F GAS TURBINE W/ 416.5 MMBTU DUCT BURNERS	NATURAL GAS	190	MW			1.3	lb/hr		13.6	T/YR			0	
TX-0516	CITY PUBLIC SERVICE JK SPRUCE ELECTRIC GENERATING UNIT 2	12/28/2005	SPRUCE POWER GENERATOR UNIT NO 2				(2) GE7FA at 195 MW each. (1) steam turbine at 200 MW. Each turbine is equipped with an unfired heat recovery steam generator (HRSG), which provides steam for the steam turbine. The gas turbines will be one of three options:		44	lb/hr		129	T/YR			0	
TX-0600	THOMAS C. FERGUSON POWER PLANT	9/1/2011	Natural gas-fired turbines	natural gas	390	MW		pipeline quality natural gas	13.68	lb/hr	1-H	0				0	
*TX-0714	S R BERTRON ELECTRIC GENERATING STATION	12/19/2014	(2) combined cycle turbines	natural gas	240	MW	(1) Two Siemens Model F5 (SF5) CTGs each rated at nominal capability of 225 megawatts (MW). Each CTG will have a duct fired HRSG with a maximum heat input of 688 million British thermal units per hour (MMBtu/hr).  (2) Two General Electric Model 7FA (GE7FA) CTGs each rated at nominal capability of 215 MW. Each CTG will have a duct fired HRSG with a maximum heat input of 523 MMBtu/hr.  (3) Two Mitsubishi Heavy Industry G Frame (MH501G) CTGs each rated at a nominal electric output of 263 MW. Each CTG will have a duct fired HRSG with a maximum heat input of 686 MMBtu/hr.		GR SULFUR/100 0.5 DSCF			0				0	
*TX-0730	COLORADO BEND ENERGY CENTER	4/1/2015	Combined-cycle gas turbine electric generating facility	natural gas	1100	MW	combined cycle power plant that uses two combustion turbines and one steam turbine, model GE 7HA.02	efficient combustion, natural gas fuel	2	GR/100 SCF	1-HOUR	0.5	GR/100 SCF	ANNUAL		0	

**Table D-A-15**  
**Sulfuric Acid (H<sub>2</sub>SO<sub>4</sub>) RBLC Search - Combustion Turbines Firing Natural Gas (With Duct Burning)**  
**Invenenergy, LLC - Allegheny County Energy Center Project**

RBLCD	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
*TX-0751	EAGLE MOUNTAIN STEAM ELECTRIC STATION	6/18/2015	Combined Cycle Turbines (4x25 MW) @ natural gas	natural gas	210	MW	Two power configuration options authorized Siemens @ 231 MW + 500 million British thermal units per hour (MMBtu/hr) duct burner GE @ 210 MW + 349.2 MMBtu/hr duct burner		15.56	lb/hr		13.63	T/YR		0		
VA-0315	WARREN COUNTY POWER PLANT - DOMINION	12/17/2010	COMBINED CYCLE TURBINE & DUCT BURNER, 3	Natural Gas	2996	MMBTU/H	Emissions are for one of three units (Mitsubishi natural gas-fired combustion turbine (CT) generator Model M501 GAC).	Natural Gas burning	0.0001	LB/MMBTU	WITHOUT DUCT BURNER FIRING	0.0003	LB/MMBTU	WITH DUCT BURNER FIRING	0		
*VA-0321	BRUNSWICK COUNTY POWER STATION	12/17/2010	COMBUSTION TURBINE GENERATORS, (3)	Natural Gas	3442	MMBTU/H	Three (3) Mitsubishi M501 GAC combustion turbine generators with HRSG duct burners (natural gas-fired).	Low sulfur fuel	0.0006	LB/MMBTU	WITHOUT DUCT BURNING	0			0		
WA-0328	BP CHERRY POINT COGENERATION PROJECT	1/11/2005	GE 7FA COMBUSTION TURBINE & HEAT RECOVERY STEAM GENERATOR	NATURAL GAS	174	MW	THREE IDENTICAL CT & HRSG UNITS. EACH CT WILL HAVE AN ANNUAL AVERAGE CAPACITY RATING OF 1614 MMBTU/HR. EACH HRSG DUCT BURNER WILL HAVE A MAXIMUM FIRING RATE OF 105 MMBTU/HR.	LIMIT FUEL TYPE TO NATURAL GAS	0			0			0		*SEE NOTES
	Astoria Energy LLC		Combustion Turbine	Natural Gas	1000	MW		Low Sulfur Fuels	0.001	lb/MMBtu	1-hr average; Duct Burners On	2.37	lb/hr	1-hr average; Duct Burners On			
	Footprint Power Salem Harbor Development LP		Combustion Turbine	Natural Gas	346	MW		Low Sulfur Fuels	2.3	lb/hr	1-hr average; Duct Burners On	0.001	lb/MMBtu	1-hr average; Duct Burners On			
	Footprint Power Salem Harbor Development LP		Combustion Turbine	Natural Gas	346	MW		Low Sulfur Fuels	0.1	ppmv @ 15% O2	1-hr average; Duct Burners On	0.008	lb/MW-hr	1-hr average; Duct Burners On			
	Pioneer Valley		Combustion Turbine	Natural Gas	387	MW			0.0019	lb/MMBtu							
	Cricket Valley Energy Center		Combustion Turbine	Natural Gas	1000	MW			0.006	lb/MMBtu	1-hr average						
	Tenaska Partners LLC		Combustion Turbine	Natural Gas	3147	MMBTU/hr			0.000574	lb/MMBtu		1.8	lb/hr				
	UGI Development Co/ Hunlock Creek			Natural Gas	471.2	MMBTU/hr			0.0009	lb/MMBtu							
	Hess Newark Energy Center		Combustion Turbine	Natural Gas	2266	MMBTU/hr			1.33	lb/hr		0.00059	LB/MMBTU				
	York Energy Center Block 1				1574	MMBTU/hr			0.00046	lb/MMBtu	hourly basis						
	York Energy Center Block 2	6/15/2015			2512.5	MMBTU/hr	firing NG with duct burner		0.00114	lb/MMBtu	average of 3 test runs						
	York Energy Center Block 2	6/15/2015			2512.5	MMBTU/hr	firing NG without duct burner		0.00114	lb/MMBtu	average of 3 test runs						
	Calpine/Bethlehem Energy Center				122	MW			0.00046	lb/MMBtu							

**Table D-A-16**  
**Sulfuric Acid (H<sub>2</sub>SO<sub>4</sub>) RBLC Search - Combustion Turbines Firing Natural Gas (Without Duct Burning)**  
**Invenery, LLC - Allegheny County Energy Center Project**

RBLID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
CT-0161	KILLINGLY ENERGY CENTER	6/30/2017	Natural Gas w/o Duct Firing	Natural Gas	2969	MMBtu/hr	Throughout is for turbine only	Low Sulfur content fuel	0.0005	LB/MMBTU		0			0		
FL-0356	OKEECHOBEE CLEAN ENERGY CENTER	3/9/2016	Combined-cycle electric generating unit	Natural gas	3096	MMBtu/hr per turbine	3-on-1 combined cycle unit. GE 7HA.02 turbines, approximately 350 MW per turbine. Total unit generating capacity is approximately 1,600 MW. Primarily fueled with natural gas. Permitted to burn the base-load equivalent of 500 lb/hr per turbine on ULSD.	Use of low-sulfur fuels		GR. S/100 SCF 2 GAS	FOR GAS	0.0015	% S IN ULSD	FOR ULSD	0		
*FL-0363	DANIA BEACH ENERGY CENTER	12/4/2017	2-on-1 combined cycle unit (GE 7HA)	Natural gas	4000	MMBtu/hr	Two nominal 430 MW combustion turbines, coupled to a steam turbine generator.	Clean fuels	0			0			0		
MI-0423	INDECK NILES, LLC	1/4/2017	Combined Cycle CTGs with HRSGs	Natural gas	8322	MMBTU/H	recovery steam generators (HRSG) identified as EUCTGHRSG1 & EUCTGHRSG2 in the flexible group FGCTGHRSG. The total hours for startup and shutdown for each train shall not	Good Combustion Practices and the use of pipeline quality natural gas.	4.6	LB/H	PROTOCOL WILL SPECIFY	0			0		
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	Combustion Turbine firing Natural Gas	Natural Gas	8040	H/YR		USE OF NATURAL GAS A CLEAN BURNING FUEL	3.61	LB/H	ONE H STACK TESTS EVERY 5	0			0		
*PA-0310	CPV FAIRVIEW ENERGY CENTER	9/2/2016	and HRSG without duct burner NG only	Natural gas	0		Emission limits are for each turbine fueled by NG and operating without duct burner being fired and do not include startup/shutdown emissions.	Low sulfur fuels and good combustion practices	0.0014	LB/MMBTU		0			0		
TX-0788	NECHES STATION	3/24/2016	Turbines &gt; 25 MW	natural gas	232	MW	4 Simple cycle CTGs, 2,500 hr/yr operational limitation. Facility will consist of either 232 MW (Siemens) or 220 MW (GE)	good combustion practices, low sulfur fuel	1	GR/100 SCF	HOURLY	0.25	GR/100 SCF	ANNUAL AVERAGE	0		
TX-0788	NECHES STATION	3/24/2016	Combined Cycle & ramp, Cogeneration	natural gas	231	MW	2 CTGs to operate in simple cycle & combined cycle modes. 231 MW (Siemens) or 210 MW (GE). Simple cycle operations limited to 2,500 hr/yr.	GOOD COMBUSTION PRACTICES AND LOW SULFUR FUEL	1	GR/100 SCF	HOURLY	0.25	GR/100 SCF	ANNUAL AVERAGE	0		
TX-0789	DECOROVA STEAM ELECTRIC STATION	3/8/2016	Combined Cycle & ramp, Cogeneration	natural gas	231	MW	2 CTGs to operate in simple cycle & combined cycle modes. 231 MW (Siemens) or 210 MW (GE). Simple cycle operations limited to 2,500 hr/yr.	GOOD COMBUSTION PRACTICES AND LOW SULFUR FUEL	5	GR/100 SCF	HOURLY	1	GR/100 SCF	ANNUAL	0		
*TX-0834	MONTGOMERY COUNTY POWER STATION	3/30/2018	Combined Cycle Turbine	NATURAL GAS	2635	MMBTU/HR/UNIT											
							Two Mitsubishi M501GAC turbines (without fast start)	PIPELINE QUALITY NATURAL GAS	1	GR/100 DSCF		0			0		
*WV-0029	HARRISON COUNTY POWER PLANT	3/27/2018	GE 7HA.02 Turbine	Natural Gas	3496.2	mmBtu/hr	Normal 640 mWe All emission limits steady-state and include 1000 mmBtu/hr Duct Burner in operation Short Term startup and shutdown limits in lb/event given in permit.	Use of Natural Gas	3.8	LB/HR		16.7	TONS/YEAR		0.0009	LB/MMBTU	
*DE-0023	NRG ENERGY CENTER DOVER	10/31/2012	UNIT 2- KDI	Natural Gas	655	MMBTU/H			0.12	lb/hr	1 HOUR AVERAGE 12 MONTH ROLLING AVERAGE	0			0		
DE-0024	GARRISON ENERGY CENTER	1/30/2013	Unit 1	Natural Gas	2260	million BTUs			24.3	TONS		0			0		
FL-0304	CANE ISLAND POWER PARK	9/8/2008	500 MW COMBINED CYCLE COMBUSTION TURBINE	NATURAL GAS	1860	MMBTU/H											
								FUEL SPECIFICATIONS		GR S/100 SCF 2 GAS		0			0		
*IA-0107	MARSHALLTOWN GENERATING STATION	4/14/2014	Combustion turbine #1 - combined cycle	natural gas	2258	mmBtu/hr	two identical Siemens SGT6-5000F combined cycle turbines without duct firing, each at 2258 mmBtu/hr generating approx. 300 MW each.		0.0032	LB/MMBTU	3 ONE-HOUR TEST RUNS AVERAGE OF 3 ONE-HOUR TEST RUNS	31.3	TON/YR	12-MONTH ROLLING TOTAL	0		
*IA-0107	MARSHALLTOWN GENERATING STATION	4/14/2014	Combustion turbine #2 -combined cycle	natural gas	2258	mmBtu/hr			0.0032	LB/MMBTU		31.3	TON/YR		0		
LA-0192	CRESCENT CITY POWER	6/6/2005	GAS TURBINES - (187 MW (2) 2 COMBINED CYCLE COMBUSTION TURBINES WITHOUT DUCT FIRING	NATURAL GAS	2006	MMBTU/H		USE OF LOW SULFUR NATURAL GAS, 1.8 GRAINS PER 100 SCF	8.5	lb/hr	*SEE NOTES. HOURLY MAXIMUM	37.2	T/YR	ANNUAL MAXIMUM	0		
*MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014		NATURAL GAS	270	MW		EXCLUSIVE USE OF PIPELINE QUALITY NATURAL GAS	9.7	lb/hr	3-HOUR BLOCK AVERAGE	0			0		
*OH-0356	DUKE ENERGY HANGING ROCK ENERGY	12/18/2012	Turbines (4) (model GE 7FA) Duct Burners Off	NATURAL GAS	172	MW	Four GE 7FA combined cycle turbines, dry low NOx burners and selective catalytic reduction. These limits are for each of the 4 turbines individually, while operating with the duct burners off. This permit is a modification to RBLC OH-0252 to remove hourly restrictions on duct burners.	Burning natural gas in an efficient combustion turbine and using low sulfur fuel	0.18	lb/hr		1.01	T/YR	PER ROLLING 12 MONTHS	0		
*PA-0296	BERKS HOLLOW ENERGY ASSOC LLC/ORTLEAUNEE CITY PUBLIC SERVICE JK SPRUCE ELECTRIC GENERATOR	12/17/2013	Turbine, Combined Cycle, #1 and #2	Natural Gas	3046	MMBtu/hr	Equipped with SCR and Oxidation Catalyst		2.97	T/YR		0.65	lb/hr		0		
TX-0516	GENERATING UNIT 2	12/28/2005	UNIT NO 2						44	lb/hr		129	T/YR		0		
TX-0600	THOMAS C. FERGUSON POWER PLANT	9/1/2011	Natural gas-fired turbines	natural gas	390	MW	(2) GE7FA at 195 MW each, (1) steam turbine at 200 MW. Each turbine is equipped with an unfired heat recovery steam generator (HRSG), which provides steam for the steam turbine.	pipeline quality natural gas	13.68	lb/hr	1-H	0			0		
*TX-0730	COLORADO BEND ENERGY CENTER	4/1/2015	Combined-cycle gas turbine electric generating facility	natural gas	1100	MW	combined cycle power plant that uses two combustion turbines and one steam turbine, model GE 7HA.02	efficient combustion, natural gas fuel	2	GR/100 SCF	1-HOUR	0.5	GR/100 SCF	ANNUAL	0		
*VA-0321	BRUNSWICK COUNTY POWER STATION	3/12/2013	COMBUSTION TURBINE GENERATORS, (3)	Natural Gas	3442	MMBTU/H	Three (3) Mitsubishi M501 GAC combustion turbine generators with HRSG duct burners (natural gas-fired).	Low sulfur fuel	0.0006	LB/MMBTU	WITHOUT DUCT BURNING	0			0		
	Astoria Energy LLC		Combustion Turbine	Natural Gas	1000	MW		Low Sulfur Fuels	0.001	lb/MMBtu	1-hr average; Duct Burners Off	0.9	lb/hr	1-hr average; Duct Burners Off			
	Footprint Power Salem Harbor Development LP		Combustion Turbine	Natural Gas	346	MW		Low Sulfur Fuels	2.2	lb/hr	1-hr average; Duct Burners Off	0.001	lb/MMBtu	1-hr average; Duct Burners Off			
	Footprint Power Salem Harbor Development LP		Combustion Turbine	Natural Gas	346	MW		Low Sulfur Fuels	0.1	ppmvd @ 15% O2	1-hr average; Duct Burners Off	0.007	lb/MW-hr	1-hr average; Duct Burners Off			
	Pioneer Valley		Combustion Turbine	Natural Gas	387	MW	Four GE 7FA combined cycle turbines, dry low NOx burners and selective catalytic reduction. These limits are for each of the 4 turbines individually, while operating with the duct burners on. This permit is a modification to RBLC OH-0252 to remove hourly restrictions on duct burners.		0.0019	lb/MMBtu							
	Cricket Valley Energy Center		Combustion Turbine	Natural Gas	1000	MW			0.006	lb/MMBtu	1-hr average						
	Tenaska Partners LLC		Combustion Turbine	Natural Gas	3147	MMBTU/hr			0.000574	lb/MMBtu		1.8	lb/hr				
	UGI Development Co/ Hunlock Creek			Natural Gas	471.2	MMBTU/hr			0.0009	lb/MMBtu							
	Hess Newark Energy Center		Combustion Turbine	Natural Gas	2320	MMBTU/hr			1.36	lb/hr							
	York Energy Center Block 1				1574	MMBTU/hr			0.00046	lb/MMBtu	hourly basis						
	Calpine/Bethlehem Energy Center				122	MW			0.00046	lb/MMBtu							

**Table D-A-17**  
**Greenhouse Gases (GHG) RBLC Search - Combustion Turbines Firing Natural Gas (With Duct Burning)**  
**Invenergy, LLC - Allegheny County Energy Center Project**

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
LA-0313	ST. CHARLES POWER STATION	8/31/2016	SCPS Combined Cycle Unit 1A	Natural Gas	3625	MMBTU/hr		Thermally efficient combustion turbines and good combustion practices	0			0			0		
LA-0313	ST. CHARLES POWER STATION	8/31/2016	SCPS Combined Cycle Unit 1B	Natural Gas	3625	MMBTU/hr		Thermally efficient combustion turbines and good combustion practices	0			0			0		
MI-0423	INDECK NILES, LLC	1/4/2017	FGCTGHRSG (2 Combined Cycle CTGs with HRSGs)	Natural gas	8322	MMBTU/H	There are 2 combined cycle natural gas-fired combustion turbine generators (CTGs) with heat recovery steam generators (HRSG) identified as EUCTGHRSG1 & EUCTGHRSG2 in the flexible group FGCTGHRSG. The total hours for startup and shutdown for each train shall not exceed 500 hours per 12-month rolling time period.  The throughput capacity is 3421 MMBTU/H for each turbine, and 740 MMBTU/H for each duct burner for a combined throughput of 4161 MMBTU/H or 8322 MMBTU/H for both trains.	Energy efficiency measures and the use of a low carbon fuel (pipeline quality natural gas).	2097001	T/YR	12-MONTH ROLLING TIME PERIOD	0			0		
*MI-0432	NEW COVERT GENERATING FACILITY	7/30/2018	FG-TURB-D01-3 (3 combined cycle combustion turbine and heat recovery steam generator trains)	Natural gas	1230	MW	Three (3) combined-cycle combustion turbine (CT) / heat recovery steam generator (HRSG) trains. Each CT is a natural gas fired Mitsubishi model 501G, equipped with dry low NOx combustor and inlet air preprocessor cooling. Each HRSG includes a natural gas fired duct burner with a 256 MMBtu/hr heat input capacity and a dry low NOx burner.	Several energy efficiency measures and the use of natural gas.	1425081	T/YR	EACH CT/HRSG TRAIN; 12-MO. ROLL TIME PER	7978	BTU/KW-H	EACH CT/HRSG TRAIN; 12-MO ROLL AVG	0		
*MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUCTGHRSG (South Plant): A combined cycle natural gas-fired combustion turbine generator with heat recovery steam generator.	Natural gas	500	MW	A combined-cycle natural gas-fired combustion turbine generator (CTG) with heat recovery steam generator (HRSG) in a 1x1 configuration with a steam turbine generator (STG) for a nominal 500 MW electricity production. The CTG is a H-class turbine with a rating of 3,080 MMBTU/H (HHV). The HRSG is equipped with a natural gas-fired duct burner rated at 755 MMBTU/H (HHV) at ISO conditions to provide heat for additional steam production. The HRSG is not capable of operating independently from the CTG. The CTG/HRSG is equipped with dry low NOx burner (DLNB), SCR and an oxidation catalyst.	Energy efficiency measures and the use of a low carbon fuel (pipeline quality natural gas).	1978297	T/YR	12-MO ROLLING TIME PERIOD	806	LB/MW-H	12-OPERATING MONTH ROLL AVG BASIS	0		
*MI-0433	MEC NORTH, LLC AND MEC SOUTH LLC	6/29/2018	EUCTGHRSG (North Plant): A combined-cycle natural gas-fired combustion turbine generator with heat recovery steam generator.	Natural gas	500	MW	A combined-cycle natural gas-fired combustion turbine generator (CTG) with heat recovery steam generator (HRSG) in a 1x1 configuration with a steam turbine generator (STG) for a nominal 500 MW electricity production. The CTG is a H-class turbine with a rating of 3,080 MMBTU/hr (HHV). The HRSG is equipped with a natural gas-fired duct burner rated at 755 MMBTU/hr (HHV) at ISO conditions to provide heat for additional steam production. The HRSG is not capable of operating independently from the CTG. The CTG/HRSG is equipped with dry low NOx burner (DLNB), SCR, and an oxidation catalyst.	Energy efficiency measures and the use of a low carbon fuel (pipeline quality natural gas).	1978297	T/YR	12-MO ROLL TIME PERIOD	806	LB/MWH	12- OPERATING MONTH ROLL AVG	0		
*MI-0435	BELLE RIVER COMBINED CYCLE POWER PLANT	7/16/2018	FGCTGHRSG (EUCTGHRSG1 & EUCTGHRSG2)	Natural gas	0		Plant nominal 1,150 MW electricity production. Turbines are each rated at 3,658 MMBTU/H and HRSG duct burners are each rated at 800 MMBTU/H.  The HRSGs are not capable of operating independently from the CTGs.	Energy efficiency measures	2042773	T/YR	12-MO ROLLING TIME PERIOD, EACH UNIT	794	LB/MW-H	12-OPER MO ROLL AVG, EACH UNIT	0		
NJ-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	Combustion Turbine firing Natural Gas with Duct Burner	natural gas	4000	h/vr		USE OS NATURAL GAS A CLEAN BURNING FUEL	888	LB/MW-H	BASED ON CONSECUTIVE 12 MONTH ROLLING	0			0		
*PA-0306	TENASKA PA PARTNERS/WESTMORELAND GEN FAC	2/12/2016	Large combustion turbine	Natural Gas	0		This process entry is for operations with the duct burner. Limits entered are for each turbine. Emission limits are for each turbine operating with duct burner and do not include startup/shutdown emissions. Tons per year limits is a cumulative value for all three CCCT, CEMS for NOx, CO, and O2. Each CCCT and duct burner have 5 operational scenarios: 1 CCCT with duct burner fired - fueled by NG only 2 CCCT with duct burner fired - fueled by NG blend with ethane 3 CCCT without duct burner fired - fueled by NG only 4 CCCT without duct burner fired - fueled by NG blend with ethane 5 CCCT without duct burner fired - fueled by ULSD (Limited to emergency use only)	Good combustion practices	1881905	TPY		0			0		
*PA-0310	CPV FAIRVIEW ENERGY CENTER	9/2/2016	Combustion turbine and HRSG with duct burner NG only	Natural Gas	3338	MMBTU/hr		low sulfur fuel and good combustion practices	3352086	TONS	12-MONTH ROLLING BASIS	0			0		
TN-0162	JOHNSONVILLE COGENERATION	4/19/2016	Natural Gas-Fired Combustion Turbine with HRSG	Natural Gas	1339	MMBTU/hr	Turbine throughput is 1019.7 MMBtu/hr when burning natural gas and 1083.7 MMBtu/hr when burning No. 2 oil. Duct burner throughput is 319.3 MMBtu/hr. Duct burner firing will occur during natural gas combustion only.	Good combustion design and practices	1800	LB/MWH	12-MONTH MOVING AVERAGE	0			0		
TX-0791	ROCKWOOD ENERGY CENTER	3/18/2016	Combined Cycle & Cogeneration (&gt; 25 megawatts (MW))	natural gas	889	MW	(2) GE 7HA.01 in a 2x1 configuration and a 872 million British thermal units per hour (MMBTU/hr) duct burner	Good combustion practices	901	LB/MWH		0			0		
TX-0791	ROCKWOOD ENERGY CENTER	3/18/2016	Combined Cycle & Cogeneration (&gt; 25 MW)	natural gas	1127	MW	(2) GE 7HA.02 in a 2x1 configuration and a 985 MMBtu/hr duct burner	Good combustion practices	865	LB/MWH		0			0		
TX-0791	ROCKWOOD ENERGY CENTER	3/18/2016	Combined Cycle & Cogeneration (&gt; 25 MW)	natural gas	748	MW	(2) GE 7FA.05 in a 2x1 configuration and a 826 MMBtu/hr duct burner	Good combustion practices	944	LB/MWH		0			0		
TX-0791	ROCKWOOD ENERGY CENTER	3/18/2016	Combined Cycle & Cogeneration (&gt; 25 MW)	natural gas	889	MW	(2) MHI 501GAC in a 2x1 configuration and a 221 MMBtu/hr duct burner	good combustion practices	929	LB/MWH		0			0		
TX-0791	ROCKWOOD ENERGY CENTER	3/18/2016	Combined Cycle & Cogeneration (&gt; 25 MW)	natural gas	889	MW	(2) MHI 501GAC in (2) 1x1 configurations and a 221 MMBtu/hr duct burner	good combustion practices	929	LB/MWH		0			0		
TX-0791	ROCKWOOD ENERGY CENTER	3/18/2016	Combined Cycle & Cogeneration (&gt; 25 MW)	natural gas	915	MW	(2) Siemens SCC6-8000H(L4) in a 2x1 configuration and a 326 MMBtu/hr duct burner	good combustion practices	965	LB/MWH		0			0		
TX-0819	GAINES COUNTY POWER PLANT	4/28/2017	Combined Cycle Turbine with Heat Recovery Steam Generator, fired Duct Burners, and Steam Turbine Generator	NATURAL GAS	426	MW	Four Siemens SGT6-5000F5 natural gas fired combustion turbines with HRSGs and Steam Turbine Generators	Pipeline quality natural gas	960	LB / MW H		0			0		

**Table D-A-17**  
**Greenhouse Gases (GHG) RBLC Search - Combustion Turbines Firing Natural Gas (With Duct Burning)**  
**Invenergy, LLC - Allegheny County Energy Center Project**

RBLCD	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
*WV-0029	HARRISON COUNTY POWER PLANT	3/27/2014	GE 7HA02 Turbine	Natural Gas	3496.2	mmBtu/hr	Nominal 640 mWe All emission limits steady-state and include 1000 mmBtu/hr Duct Burner in operation Short Term startup and shutdown limits in 18event given in permit.	Use of Natural Gas, Model GE7HA	528543	LB/HR		2315020	TONS/YEAR			826	LB/MW-HR
*DE-0023	NRG ENERGY CENTER DOVER	10/31/2012	UNIT 2-KDI	Natural Gas	655	MMBTU/H	500 MMBTU/hr Gas Turbine (Model: GE LM6000) rated at 52 MW and 155 MMBTU/hr Heat Recovery Steam Generator rated at 18 MW. The unit is required to operate a certified CEMS and COMS.		1085	LB/GROSS MWH	12 MONTH ROLLING AVERAGE	0				0	
DE-0024	GARRISON ENERGY CENTER	1/30/2013	Unit 1	Natural Gas	2260	million BTUs		Fuel Usage Restriction to natural gas and low sulfur distillate fuel	1.01E+06	T/YR	12 MONTH ROLLING AVERAGE	0				0	
*IA-0107	MARSHALLTOWN GENERATING STATION	4/14/2014	Combustion turbine #2-combined cycle	natural gas	2258	mmBtu/hr			1.32E+06	T/YR	12-MONTH ROLLING TOTAL	0				0	
*IN-0158	ST. JOSEPH ENRGY CENTER, LLC	12/3/2012	FOUR (4) NATURAL GAS COMBINED CYCLE COMBUSTION TURBINES	NATURAL GAS	2300	MMBTU/H	EACH TURBINE IS EQUIPPED WITH DRY LOW NOX BURNERS, NATURAL GAS FIRED DUCT BURNERS, AND A HEAT RECOVERY STEAM GENERATOR IDENTIFIED AS HRSG#. NOX EMISSIONS CONTROLLED BY SELECTIVE CATALYTIC REDUCTION SYSTEMS (SCR#) ALONG WITH CO AND VOC EMISSIONS CONTROLLED BY OXIDATION CATALYST SYSTEMS (CAT#) IN EACH TURBINE. EACH CTA# HAS CONTINUOUS EMISSIONS MONITORS FOR NOX AND CO. COMBINED NOMINAL POWER OUTPUT IS 1,350 MW.	HIGH THERMAL EFFICIENCY DESIGN	7646	BTU/KW-H		4.89E+06	TONS	12 CONSECUTIVE MONTH PERIOD		0	
LA-0256	COGENERATION PLANT	12/6/2011	COGENERATION TRAINS 1-3 (1-10, 2-10, 3-10)	NATURAL GAS	475	MMBTU/H	EACH COGEN TRAIN CONSISTS OF A 50 MW GE LM6000 PF SPRINT TURBINE AND A HEAT RECOVERY STEAM GENERATOR EQUIPPED WITH A 70 MM BTU/HR DUCT BURNER.	USE OF NATURAL GAS AS FUEL AND GOOD COMBUSTION PRACTICES	55576.77	LB/H	HOURLY MAXIMUM	0				0	
LA-0257	SABINE PASS LNG TERMINAL	12/6/2011	Combined Cycle Refrigeration Compressor Turbines (8)	natural gas	286	MMBTU/H	GE LM2500-G4	Good combustion/operating practices and fueled by natural gas - use GE LM2500-G4 turbines	4.87E+06	T/YR	ANNUAL MAXIMUM FROM THE FACILITYWIDE	0				0	
*MD-0041	CPV ST. CHARLES	4/23/2014	2 COMBINED-CYCLE COMBUSTION TURBINES	NATURAL GAS	725	MEGAWATT		CO2 CEMS	7605	BTU/KW-H	@ ISO CONDITIONS	57.4	% EFFICIENCY	@ ISO CONDITIONS		0	
*MD-0042	WILDCAT POINT GENERATION FACILITY	4/8/2014	2 COMBINED CYCLE COMBUSTION TURBINES, WITH DUCT FIRING	NATURAL GAS	1000	MW	TWO MITSUBISHI & GE LM6000 MODEL COMBUSTION TURBINE GENERATORS (CTG) WITH A NOMINAL GENERATING CAPACITY OF 270 MW CAPACITY EACH, COUPLED WITH A HEAT RECOVERY STEAM GENERATOR (HRSG) EQUIPPED WITH DUCT BURNERS, DRY LOW-NOX COMBUSTORS, SELECTIVE CATALYTIC REDUCTION (SCR), OXIDATION CATALYST	EXCLUSIVE USE OF PIPELINE-QUALITY NATURAL GAS, AND INSTALLATION OF HIGH-EFFICIENCY CT MODEL (MITSUBISHI & GE LM6000 MODEL)	946	LB/MW-H	12-MONTH ROLLING	7500	BTU/KWH (HEAT RATE)	AT ALL TIMES, EXCLUDING SU/D		0	
*MI-0402	SUMPTER POWER PLANT	11/17/2011	Combined cycle combustion turbine w/ HRSG	Natural gas	130	MW electrical output	This is a combined-cycle combustion turbine with a non-fired heat recovery steam generator (HRSG).	Natural gas-fired combustion turbine conversion to combined-cycle. Throughput is 2,257 MMBTU/H for each CTG	954	LB/MW-H	12-MONTH ROLLING AVERAGE	0				0	
*MI-0405	MIDLAND COGENERATION VENTURE	4/23/2013	Natural gas fueled combined cycle combustion turbine generators (CTG) with HRSG	Natural gas	2237	MMBTU/H	Equipment is permitted as following flexible group (FG): FG-CTG1-2: Two natural gas fired CTGs with each turbine containing a heat recovery steam generator (HRSG) to operate in combined cycle. The two CTGs (with HRSG) are connected to one steam turbine generator. Each CTG is equipped with a dry low NOx (DLN) burner and a selective catalytic reduction (SCR) system.	Good combustion practices and energy efficiency.	995	LB/MW-H	12-MO. ROLLING AVERAGE	0				0	
*MI-0405	MIDLAND COGENERATION VENTURE	4/23/2013	Natural gas fueled combined cycle combustion turbine generators (CTG) with HRSG and duct burner (DB)	Natural gas	2486	MMBTU/H	This process is permitted in a flexible group format, identified in the permit as FG-CTG/DB1-2 and is for two natural gas fired CTGs with each turbine containing a heat recovery steam generator (HRSG) to operate in combined cycle. The two CTGs (with HRSG) are connected to one steam turbine generator. Each CTG is equipped with a dry low NOx (DLN) burner and a selective catalytic reduction (SCR) system. Additionally, the HRSG is operating with a natural gas fired duct burner for supplemental firing.	Good combustion practices and energy efficiency	1071	LB/MW-H	12-MONTH ROLLING AVG.	0				0	
*MI-0410	THETFORD GENERATING STATION	7/25/2013	FGCCA or FGCCB-4 nat. gas fired CTG w/ DB for HRSG	natural gas	2587	MMBTU/H heat input, each CTG	The throughput is 2,486 MMBTU/H for each CTG/DB. Natural gas fired CTG with DB for HRSG, 4 total.  Technology A (4 total) is 2587 MMBTU/H design heat input each CTG.  Technology B (4 total) is 2688 MMBTU/H design heat input each CTG.  Permit was issued for either of two F Class turbine technologies with slight variations in emission rates. Applicant will select one technology. Installation is two separate CTG/HRSG trains driving one steam turbine electrical generator, Two 2X1 Blocks. Each CTG will be rated at 211 to 230 MW (gross) output and the station nominal generating capacity will be up to 1,400 MW.		1.39E+06	T/YR	12-MO ROLL TIME PERIOD DETER EACH MONTH	0				0	
*MI-0412	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	12/4/2013	FG-CTG/HRSG: 2 Combined cycle CTGs with HRSGs with duct burners	natural gas	647	MMBTU/H for each CTG/HRSG	This process is identified in the permit as FGCTG/HRSG; it is 2 combined cycle natural gas-fired combustion turbine generators (CTGs) with Heat Recovery Steam Generators (HRSGs) equipped with duct burners for supplemental firing (EUCTG/HRSG1 & EUCTG/HRSG2 in FGCTG/HRSG). The total hours for both units combined for startup and shutdown shall not exceed 635 hours per 12-month rolling time period. Each CTG/HRSG shall not exceed 647 MMBtu/hr on a fuel heat input basis.	Energy efficiency measures and the use of a low carbon fuel (pipeline quality natural gas).	3.39E+05	T/YR	12-MO ROLL TIME PERIOD	0				0	
*NJ-0082	WEST DEPTFORD ENERGY STATION	7/18/2014	Combined Cycle Combustion Turbine with Duct Burner	Natural Gas	20282	MMCF/YR	This is a 427 MW Siemens Combined Cycle Turbine with duct burner Heat Input rate of the turbine = 2276 MMBtu/hr (HHV) Heat Input rate of the Duct burner= 777 MMBtu/hr (HHV)	Turbine efficiency and Use of Natural gas a clean burning fuel	1.24E+06	T/YR	CONSECUTIVE 12 MONTH (ROLLING 1 MONTH)	947	LB/MW-H	CONSECUTIVE 12 MONTH (ROLLING 1 MONTH)		0	
*OH-0352	OREGON CLEAN ENERGY CENTER	6/18/2013	2 Combined Cycle Combustion Turbines-Siemens, with duct burners	Natural Gas	51560	MMSCF/rolling 12-MO	The fuel use of 20,282 MMCF/YR is for three turbines and three Duct burners. Two Siemens 2932 MMBtu/H combined cycle combustion turbines, both with 300 MMBtu/H duct burners, with dry low NOx combustors, SCR, and catalytic oxidizer. Will install either 2 Siemens or 2 Mitsubishi, not both (not determined).	state-of-the-art high efficiency combustion technology	318404	LB/H		1.44E+06	T/YR	PER ROLLING 12-MONTHS		0	SEE NOTES
*OH-0352	OREGON CLEAN ENERGY CENTER	6/18/2013	2 Combined Cycle Combustion Turbines-Mitsubishi, with duct burners	Natural Gas	47917	MMSCF/rolling 12-MO	Two Mitsubishi 2932 MMBtu/H combined cycle combustion turbines, both with 300 MMBtu/H duct burners, with dry low NOx combustors, SCR, and catalytic oxidizer. Will install either 2 Siemens or 2 Mitsubishi, not both (not determined).	state-of-the-art high efficiency combustion technology	318404	LB/H		1.39E+06	T/YR	PER ROLLING 12-MONTHS		0	SEE NOTES
*OR-0050	TROUTDALE ENERGY CENTER, LLC	3/5/2014	Mitsubishi M501-GAC combustion turbine, combined cycle configuration with duct burner.	natural gas	2988	MMBtu/hr	Four GE 7FA combined cycle turbines, dry low NOx burners and selective catalytic reduction. These limits are for each of the 4 turbines individually, while operating with the duct burners on. This permit is a modification to RBLC OH-0252 to remove hourly restrictions on duct burners.	Thermal efficiency Clean facts	1000	LB/GROSS MWH	365-DAY ROLLING AVERAGE	0				0	
PA-0278	MOXIE LIBERTY LLC/ASYLUM POWER PL T	10/10/2012	Combined-cycle Turbines (2)	Natural gas fired	3277	MMBTU/H	Two combine cycle Turbines, each with a combustion turbine and heat recovery steam generator with duct burner. Each combined-cycle process will be rated at 468 MW or less. The heat input rating of each combustion gas turbine is 2890 MMBtu/hr (HHV) or less, and the heat input rating of each supplemental duct burner is equal to 387 MMBtu/hr (HHV) or less.	Good combustion practices.	1.48E+06	T/YR	468 MW POWERBLOCK	1.39E+06	T/YR	454 MW POWERBLOCK		0	

**Table D-A-17**  
**Greenhouse Gases (GHG) RBLC Search - Combustion Turbines Firing Natural Gas (With Duct Burning)**  
**Invenergy, LLC - Allegheny County Energy Center Project**

RBLCID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
*PA-0288	SUNBURY GENERATION LP/SUNBURY SES	4/1/2013	Combined Cycle Combustion Turbine AND DUCT BURNER (3)	Natural Gas	2538000	MMBTU/H	Three powerblocks consisting of three (3) natural gas fired F class combustion turbines coupled with three (3) heat recovery steam generators (HRSGs) equipped with natural gas fired duct burners.		281727	LB/H	WHEN DUCT BURNERS OPERATING	298106	LB/H	WHEN DUCT BURNERS OPERATING	0		
*PA-0291	HICKORY RUN ENERGY STATION	4/23/2013	COMBINED CYCLE UNITS #1 and #2	Natural Gas	3.4	MMCF/HR	The Permittee shall select and install any of the turbine options listed below (or newer versions of these turbines if the Department determines that such newer versions achieve equivalent or better emissions rates and exhaust parameters) 1. General Electric 7FA (GE 7FA) 2. Siemens SGT6-5000F (Siemens F) 3. Mitsubishi M501G (Mitsubishi G) 4. Siemens SGT6-8000H (Siemens H) The emissions listed are for the Siemens SGT6-8000H unit.		3.67E+06	T/YR	12-MONTH ROLLING TOTAL FOR BOTH UNITS	0			0		
*PA-0296	BERKS HOLLOW ENERGY ASSOC LLC/CONTELAUNEE	12/17/2013	Turbine, Combined Cycle, #1 and #2	Natural Gas	3046	MMBTU/hr	Equipped with SCR and Oxidation Catalyst		1.38E+06	T/YR		0			0		
TX-0612	THOMAS C. FERGUSON POWER PLANT	11/10/2011	COMBINED CYCLE TURBINE GENERATOR U1-STK	Natural Gas	1746	MMBTU/H	Natural gas-fired GE 7FA combustion turbine unit, U1-STK, and is rated at Max. based-load output of 195 MW and vented to a Heat Recovery Steam Generator(HRSG) that is equipped with a SCR and an Oxidation Catalyst(OC).	Good Combustion Practices	908957.6	LB/H	30-DAY ROLLING AVERAGE	153192.1	LB/H	STARTUP AND SHUTDOWN (ONLY)	0		
*TX-0679	CORPUS CHRISTI LIQUEFACTION PLANT	2/27/2015	Refrigeration Compressor Turbine	natural gas	40000	hp	There are three LNG trains. In total there are (6) GE LM2500+ DLE turbines driving the compressors in the ethylene refrigeration sections.	install efficient turbines, follow the turbine manufacturer's emission-related written instructions for maintenance activities including prescribed maintenance intervals to assure good combustion and efficient operation. Compressors shall be inspected and maintained according to a written maintenance plan to maintain efficiency.	1.47E+05	T/YR	12-MONTH ROLLING BASIS	0			0		
*TX-0743	AUSTIN ENERGY, SAND HILL ENERGY CENTER	9/29/2014	Combustion Turbine with HRSG, Duct Burners, and SCR	Natural Gas	7943	Btu/kWh (HHV, gross)	GE 7FA.04 Gross Heat Rate is with and without duct burner firing and includes MSS.		930	LB/MW-H	365-DAY ROLLING AVERAGE	1.46E+06	TPY CO2E	365-DAY ROLLING TOTAL	0		
*TX-0748	FGE POWER, FGE TEXAS PROJECT	4/28/2014	Combined Cycle Combustion Turbine with DB, HRSG and SCR	Natural Gas	7625	Btu/kWh	The plant will consist of four identical Axidom GT24 natural gas-fired CTGs. The CTGs will burn pipeline quality natural gas to rotate an electrical generator to generate electricity. The exhaust gas will exit the CTG and be routed to the heat recovery steam generator (HRSG) for steam production. Steam produced by each of the two HRSGs will be routed to the steam turbine. The two CTGs and one steam turbine will be coupled to electric generators to produce electricity for sale to the Electric Reliability Council of Texas (ERCOT) power grid. Each CTG has an approximate maximum base-load electric power output of 230.7 MW. The maximum electric power output from each steam turbine is approximately 336 MW. The units may operate at reduced load to respond to changes in system power requirements and/or stability.		889	LB/GROSS MW/H	APPLIES WITH OR WITHOUT DB, INCLUDES MSS	48	TON CO2/HR PER EVENT	MSS	0		
*TX-0766	GOLDEN PASS LNG EXPORT TERMINAL	9/11/2015	Refrigeration Compressor Turbines	natural gas	15.6	MMtpy	Six GE Frame 7 Turbines at site.	Equipment specifications & work practices - Good combustion practices and use of low carbon fuel	6.15E+05	T/YR		0			0		
VA-0319	GATEWAY COGENERATION 1, LLC - SMART WATER PROJECT	8/27/2012	COMBUSTION TURBINES (2)	Natural Gas	593	MMBTU/H	Burns primarily natural gas but has the capacity to burn up to 500 hours of ultra low sulfur diesel fuel (ULSD) as backup.	Controlled by the use of low carbon fuels and high efficiency design. The heat rate shall be no greater than 8,983 Btu/kWh (HHV, gross).	2.96E+05	T/YR	12 MO ROLLING AVG	1050	LB/MW/H	12 MO AVERAGE	0		
*VA-0321	BRUNSWICK COUNTY POWER STATION	3/12/2013	COMBUSTION TURBINE GENERATORS (3)	Natural Gas	3442	MMBTU/H	Three (3) Mitsubishi M501 GAC combustion turbine generators with HRSG duct burners (natural gas-fired).	Energy efficient combustion practices and low GHG fuels.	7500	BTU/KW-H		0			0		
*WV-0025	MOUNDSVILLE COMBINED CYCLE POWER PLANT	11/21/2014	Combined Cycle Turbine/Duct Burner	Natural Gas	2419.61	mmBtu/Hr	This entry is for both of two identical units at the facility. Nominal 197 mW General Electric Frame 7FA.04 Turbine w/ Duct Burner - throughput denotes aggregate heat input of turbine and duct burner (HHV).	Use of GE Frame 7EA CT Low Carbon Fuel	272556	LB/H		792	LB/MW/H		0		
	Kalama Energy Center		Combustion Turbine	Natural Gas	2247	MMBTU/hr			858	LB/MW-H	12-mo rolling average	1.20E+06	tpy	12-mo rolling total			
	Gibson County Generation, LLC		Combustion Turbine	Natural Gas	417	MW			1.68E+06	T/YR				Not to exceed within 180 days during startup			
	Pioneer Valley Energy Center		Combustion Turbine	Natural Gas	2016	MMBTU/hr			825	LB/MW-H				Not to exceed following 365 days after startup.			
	Pioneer Valley Energy Center		Combustion Turbine	Natural Gas	2016	MMBTU/hr			895	LB/MW-H							
	Tenaska Partners LLC		Combustion Turbine	Natural Gas	3147	MMBTU/hr			876	LB/MW-H		1.88E+06	tpy				
	Huntington Beach Energy Project		Combustion Turbine	Natural Gas	939	MW (net)			0.479	MT/CO2/MWh							
	York Energy Center Block 2	6/15/2015			2512.5	MMBTU/hr	firing NG with duct burner		880	LB/MW-H							
	Shell Chemical Appalachia/Petrochemicals Complex	6/18/2015			664	MMBTU/hr	combustion turbines with duct burners		1030	LB/MW-H	30-day rolling average						

**Table D-A-18  
Greenhouse Gases (GHG) RBLC Search - Combustion Turbines Firing Natural Gas (Without Duct Burning)  
Invenergy, LLC - Allegheny County Energy Center Project**

RBLCD	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
CT-0161	KILLINGLY ENERGY CENTER	6/30/2017	Natural Gas w/o Duct Firing	Natural Gas	2969	MMBTu/hr	Throughput is for turbine only	Use of low carbon fuel	7273	BTU/KW-HR	12-MONTH ROLLING (NET PLANT, GAS ONLY)	816	LB/MW-HR	(NET, GAS ONLY)		0	
FL-0356	OKEECHOBEE CLEAN ENERGY CENTER	3/9/2016	Combined-cycle electric generating unit FGCTGHRSG (2 Combined cycle CTGs with HRSGs; EUCCTGHRSG10 & EUCCTGHRSG11)	Natural gas	3096	MMBTu/hr per turbine	3-on-1 combined cycle unit. GE 7HA.02 turbines, approximately 350 MW per turbine. Total unit generating capacity is approximately 1,600 MW. Primarily fueled with natural gas. Permitted to burn the base-load equivalent of 500 lb/yr per turbine on ULSD.	Use of low-emitting fuels and technologies	850	LB/MWH	FOR GAS OPERATION, 12-MO ROLLING	1210	LB/MWH	FOR ULSD OPERATION, 12-MO ROLLING		0	
MI-0424	HOLLAND BOARD OF PUBLIC WORKS - EAST 5TH STREET	12/5/2016	EUCCT (Combined cycle CTG with unfired HRSG)	Natural gas	554	MMBTU/H, each	Two combined cycle natural gas fired combustion turbine generators (CTGs) with heat recovery steam generators (HRSG) (EUCCTGHRSG10 & EUCCTGHRSG11 in FGCTGHRSG). The total hours for both units combined for startup and shutdown shall not exceed 635 hours per 12-month rolling time period.	Energy efficiency measures and the use of a low carbon fuel (pipeline quality natural gas).	312321	T/YR	12-MO. ROLLING TIME PERIOD; EACH EU.	0			0		
MI-0427	FILER CITY STATION	11/17/2017		Natural gas	1934.7	MMBTU/H	A 1,934.7 MMBTU/H natural gas fired heavy frame industrial combustion turbine. The turbine operates in combined-cycle with an unfired heat recovery steam generator (HRSG).	Energy efficiency measures and the use of a low carbon fuel (pipeline quality natural gas).	992286	T/YR	12-MO.ROLL.TIME PERIOD	0				0	
NI-0085	MIDDLESEX ENERGY CENTER, LLC	7/19/2016	Combined Cycle Combustion Turbine firing Natural Gas without Duct Burner	Natural Gas	8040	H/YR		USE OF NATURAL GAS A CLEAN BURNING FUEL	888	LB/MW-H	BASED ON CONSECUTIVE 12-MONTH ROLLING	0			0		
TX-0787	TRINIDAD GENERATING FACILITY	3/1/2016	Combined Cycle & Cogeneration	natural gas	497	MW		Good Combustion Practices	937	LB/MW HR		0			0		
TX-0788	NECHES STATION	3/24/2016	Combined Cycle & Cogeneration	natural gas	231	MW	2 CTGs to operate in simple cycle & combined cycle modes. 231 MW (Siemens) or 210 MW (GE). Simple cycle operations limited to 2,500 hr/yr.	GOOD COMBUSTION PRACTICES	924	LB/MWH		0			0		
TX-0790	PORT ARTHUR LNG EXPORT TERMINAL	2/17/2016	Refrigeration Compression Turbines	natural gas	10	M TONNES/YR	Four GE Frame 7E gas turbines for refrigeration and compression at the site	Equipment specifications & work practices - Good combustion practices and use of low carbon fuel	504517	T/YR		0			0		
TX-0790	PORT ARTHUR LNG EXPORT TERMINAL	2/17/2016	Simple Cycle Electrical Generation Gas Turbines 15.210	natural gas	34	MW	Nine GE PG725+G4 gas turbines for electrical generation at the site at 34 MW/turbine	Equipment specifications & work practices - Good combustion practices and use of low carbon, low sulfur fuel	156912	T/YR		1060	LB/MW		0		
TX-0805	EAGLE MOUNTAIN STEAM ELECTRIC STATION	7/19/2016	Combined Cycle & Cogeneration	natural gas	462	MW		Good Combustion Practices	917	LB/MW H		0			0		
TX-0810	DECORDOVA STEAM ELECTRIC STATION (DECORDOVA STATION)	10/4/2016	Combined Cycle and Cogeneration (>25 MW)	natural gas	213	MW	Two turbine options: GE 7FA [210 megawatts (MW)] or Siemens 5000F (231MW)	good combustion practices and firing low carbon fuel.	966	LB/MW H		0			0		
TX-0817	CHOCOLATE BAYOU STEAM GENERATING (CBSG) STATION	2/17/2017	Combined Cycle Cogeneration	NATURAL GAS	50	MW	2 UNITS EACH 50 MW GE LM6000		1000	LB/MW H		0			0		
*TX-0834	MONTGOMERY COUNTY POWER STATION	3/30/2018	Combined Cycle Turbine	NATURAL GAS	2635	MMBTU/HR/UNIT	Two Mitsubishi M501GAC turbines (without fast start)	PIPELINE QUALITY NATURAL GAS, GOOD COMBUSTION PRACTICES	884	LB/MWH		0			0		
*TX-0834	MONTGOMERY COUNTY POWER STATION	3/30/2018	COMBINED CYCLE TURBINE MSS REDUCED LOAD	NATURAL GAS	0		9 HOURS STARTUP, 1 HOUR SHUTDOWN	minimizing duration of startup / shutdown events, engaging the pollution control equipment as soon as practicable (based on vendor recommendations and guarantees), and meeting the emissions limits on the MAERT	223	TON/H		0			0		
*DE-0023	NRG ENERGY CENTER DOVER	10/31/2012	UNIT 2- KDI	Natural Gas	655	MMBTU/H	500 MMBTU/hr Gas Turbine (Model: GE LM6000) rated at 52 MW and 155 MMBTU/hr Heat Recovery Steam Generator rated at 18 MW. The unit is required to operate a certified CEMS and COMS.		1,085.0	LB/GROSS MWH	12 MONTH ROLLING AVERAGE	0.00E+00			0		
DE-0024	GARRISON ENERGY CENTER	1/30/2013	Unit 1	Natural Gas	2260	million BTUs		Fuel Usage Restriction to natural gas and low sulfur distillate fuel	1,006,304.0	TONS	12 MONTH ROLLING AVERAGE	0.00E+00			0		
*IA-0107	MARSHALLTOWN GENERATING STATION	4/14/2014	Combustion turbine #1 - combined cycle	natural gas	2258	mmBTu/hr	two identical Siemens SGT6-5000F combined cycle turbines without duct firing, each at 2258 mmBTu/hr generating approx. 300 MW each.		1,318,647.0	TON/YR	12-MONTH ROLLING	0.00E+00			0		
IA-0257	SABINE PASS LNG TERMINAL	12/6/2011	Combined Cycle Refrigeration Compressor Turbines (8)	natural gas	286	MMBTU/H	GE LM2500+G4	Good combustion/opening practices and fueled by natural gas - use GE LM2500+G4 turbines	4,872,107.0	TONS/YEAR	ANNUAL MAXIMUM FROM THE FACILITYWIDE	0.00E+00			0		
*MI-0402	SUMPTER POWER PLANT	11/17/2011	Combined cycle combustion turbine w/ HRSG	Natural gas	130	MW electrical output	This is a combined-cycle combustion turbine with a non-fired heat recovery steam generator (HRSG). Natural gas-fired combustion turbine conversion to combined-cycle. Throughput is 2,237 MMBTU/H for each CTG		954.0	LB/MW-H	12-MONTH ROLLING AVERAGE	0.00E+00			0		
*MI-0405	MIDLAND COGENERATION VENTURE	4/23/2013	Natural gas fueled combined cycle combustion turbine generators (CTG) with HRSG	Natural gas	2237	MMBTU/H	Equipment is permitted as following flexible group (FG): FG-CTG1-2: Two natural gas fired CTGs with each turbine containing a heat recovery steam generator (HRSG) to operate in combined cycle. The two CTGs (with HRSG) are connected to one steam turbine generator. Each CTG is equipped with a dry low NOx (DLN) burner and a selective catalytic reduction (SCR) system. Natural gas fired CTGs with DB for HRSG; 4 total.	Good combustion practices and energy efficiency.	995.0	LB/MW-H	12-MO. ROLLING AVERAGE	0.00E+00			0		
							Technology A (4 total) is 2587 MMBTU/H design heat input each CTG. Technology B (4 total) is 2688 MMBTU/H design heat input each CTG. Permit was issued for either of two F Class turbine technologies with slight variations in emission rates. Applicant will select one technology. Installation is two separate CTG/HRSG trains driving one steam turbine electrical generator; Two 2X1 Blocks. Each CTG will be rated at 211 to 230 MW (gross) output and the station nominal generating capacity will be up to 1,400 MW.		1,386,286.0	T/YR	12-MO ROLL TIME PERIOD DETER EACH MONTH	0.00E+00			0		
*MI-0410	THETFORD GENERATING STATION	7/25/2013	FGCCA or FGCCB-4 nat. gas fired CTG w/ DB for HRSG	natural gas	2587	MMBTU/H heat input, each CTG	Two Mitsubishi 2932 MMBtu/H combined cycle combustion turbines, both with 300 MMBtu/H duct burners, with dry low NOx combustors, SCR, and catalytic oxidizer. Will install either 2 Siemens or 2Mitsubishi, not both (not determined). Short term limits are different with and without duct burners. This process without duct burners.	state-of-the-art high efficiency combustion technology	318,404.0	LB/H		1.44E+06	T/YR	PER ROLLING 12 MONTHS	840	LB/MW-H	GROSS OUTPUT
*OH-0352	OREGON CLEAN ENERGY CENTER	6/18/2013	2 Combined Cycle Combustion Turbines-Siemens, without duct burners	Natural Gas	515600	MMSCF/rolling 12-months	Two Mitsubishi 2932 MMBtu/H combined cycle combustion turbines, both with 300 MMBtu/H duct burners, with dry low NOx combustors, SCR, and catalytic oxidizer. Will install either 2 Siemens or 2Mitsubishi, not both (not determined). Short term limits are different with and without duct burners. This process without duct burners.	state-of-the-art high efficiency combustion technology	318,404.0	LB/H		1.39E+06	T/YR	PER ROLLING 12 MONTHS	0		SEE NOTES

**Table D-A-18  
Greenhouse Gases (GHG) RBLC Search - Combustion Turbines Firing Natural Gas (Without Duct Burning)  
Invenergy, LLC - Allegheny County Energy Center Project**

RBL CID	FACILITY NAME	PERMIT ISSUANCE DATE	PROCESS NAME	PRIMARY FUEL	THROUGHPUT	THROUGHPUT UNIT	PROCESS NOTES	CONTROL METHOD DESCRIPTION	EMISSION LIMIT 1	UNIT	AVG TIME CONDITION	EMISSION LIMIT 2	UNIT	AVG TIME CONDITION	STANDARD EMISSION LIMIT	UNIT	AVG TIME CONDITION
*PA-0291	HICKORY RUN ENERGY STATION	4/23/2013	COMBINED CYCLE UNITS #1 and #2	Natural Gas	3.4	MMCF/HR	The Permittee shall select and install any of the turbine options listed below (or newer versions of these turbines if the Department determines that such newer versions achieve equivalent or better emissions rates and exhaust parameters) 1. General Electric 7FA (GE 7FA) 2. Siemens SGT6-5000F (Siemens F) 3. Mitsubishi M501G (Mitsubishi G) 4. Siemens SGT6-8000H (Siemens H) The emissions listed are for the Siemens SGT6-8000H unit.		3,665,974.0	TPY	12-MONTH ROLLING TOTAL FOR BOTH UNITS	0.00E+00			0		
*PA-0296	BERKS HOLLOW ENERGY ASSOC LLC/ONTELAUNEE	12/17/2013	Turbine, Combined Cycle, #1 and #2	Natural Gas	3046	MMBtu/hr	Equipped with SCR and Oxidation Catalyst		1,380,899.0	T/YR		0.00E+00			0		
TX-0612	THOMAS C. FERGUSON POWER PLANT	11/10/2011	COMBINED CYCLE TURBINE GENERATOR U1-STK	Natural Gas	1746	MMBTU/H	Natural gas-fired GE 7FA combustion turbine unit, U1-STK, and is rated at Max. based-load output of 195 MW and vented to a Heat Recovery Steam Generator(HRSG) that is equipped with a SCR and an Oxidation Catalyst(OC).	Good Combustion Practices install efficient turbines, follow the turbine manufacturer's emission-related written instructions for maintenance activities including prescribed maintenance intervals to assure good combustion and efficient operation. Compressors shall be inspected and maintained according to a written maintenance plan to maintain efficiency.	908,957.6	LB/H	30-DAY ROLLING AVERAGE	1.53E+05	LB/H	STARTUP AND SHUTDOWN (ONLY)	0		
*TX-0679	CORPUS CHRISTI LIQUEFACTION PLANT	2/27/2015	Refrigeration Compressor Turbine	natural gas	40000	hp	There are three LNG trains. In total there are (6) GE LM2500+ DLE turbines driving the compressors in the ethylene refrigeration sections. The plant will consist of four identical Auston GT24 natural gas-fired CTGs. The CTGs will burn pipeline quality natural gas to rotate an electrical generator to generate electricity. The exhaust gas will exit the CTG and be routed to the heat recovery steam generator (HRSG) for steam production. Steam produced by each of the two HRSGs will be routed to the steam turbine. The two CTGs and one steam turbine will be coupled to electric generators to produce electricity for sale to the Electric Reliability Council of Texas (ERCOT) power grid. Each CTG has an approximate maximum base-load electric power output of 230.7 MW. The maximum electric power output from each steam turbine is approximately 336 MW. The units may operate at reduced load to respond to changes in system power requirements and/or stability.		146,754.0	TPY	12-MONTH ROLLING BASIS	0.00E+00			0		
*TX-0748	FGE POWER, FGE TEXAS PROJECT	4/28/2014	Combined Cycle Combustion Turbine with DB, HRSG and SCR	Natural Gas	7625	Btu/kWh			889.0	LB CO2/MWH, GROSS	APPLIES WITH OR WITHOUT DB, INCLUDES MSS	4.80E+01	TON CO2/HR PER EVENT	MSS	0		
*TX-0766	GOLDEN PASS LNG EXPORT TERMINAL	9/11/2015	Refrigeration Compressor Turbines	natural gas	15.6	MMtpy	Six GE Frame 7 Turbines at site.	Equipment specifications & work practices - Good combustion practices and use of low carbon fuel	614,533.0	TPY		0.00E+00			0		
VA-0319	GATEWAY COGENERATION 1, LLC - SMART WATER PROJECT	8/27/2012	COMBUSTION TURBINES, (2)	Natural Gas	593	MMBTU/H	Burns primarily natural gas but has the capacity to burn up to 500 hours of ultra low sulfur diesel fuel (ULSD) as backup.	Controlled by the use of low carbon fuels and high efficiency design. The heat rate shall be no greater than 8,983 Btu/kW-h (HHV, gross).	295,961.0	T/YR	12 MO ROLLING AVG	1.05E+03	LB/MWH	12 MO AVERAGE	0		
*VA-0321	BRUNSWICK COUNTY POWER STATION	3/12/2013	COMBUSTION TURBINE GENERATORS, (3)	Natural Gas	3442	MMBTU/H	Four GE 7FA combined cycle turbines, dry low NOx burners and selective catalytic reduction. These limits are for each of the 4 turbines individually, while operating with the duct burners on. This permit is a modification to RBLC OH-0252 to remove hourly restrictions on duct burners.	Energy efficient combustion practices and low GHG fuels.	7,500.0	BTU/KW-H		0			0		
	Footprint Power Salem Harbor Development LP		Combustion Turbine	Natural Gas	346	MW			825.0	lb/MW-hr	Duct Burners Off	8.95E+02	lb/MW-hr	365 day rolling average			
	Kalama Energy Center Gibson County Generation, LLC		Combustion Turbine	Natural Gas	2247	MMBtu/hr			858.0	lb/Mwhe	12-mo rolling average	1.20E+06	tpy	12-mo rolling total			
			Combustion Turbine	Natural Gas	417	MW			1,679,459.0	tpy							
	Pioneer Valley Energy Center		Combustion Turbine	Natural Gas	2016	MMBtu/hr			825.0	lb/MWh					Not to exceed within 180 days during startup		
	Pioneer Valley Energy Center		Combustion Turbine	Natural Gas	2016	MMBtu/hr			895.0	lb/MWh					Not to exceed following 365 days after startup.		
	Russell City Energy Company, LLC		Combustion Turbine	Natural Gas	2038.6	MMBtu/hr			242.0	metric tons/hr		5.80E+03	metric tons/day				
	Russell City Energy Company, LLC		Combustion Turbine	Natural Gas	2038.6	MMBtu/hr			7,730.0	Btu/kWhr							
	Tenaska Partners LLC		Combustion Turbine	Natural Gas	3147	MMBtu/hr			876.0	lb/MWh		1.88E+06	tpy				
	Huntington Beach Energy Project		Combustion Turbine	Natural Gas	939	MW (net)			0.5	MTCO2/MWh							
	York Energy Center Block 2	6/15/2015	Combustion Turbine	Natural Gas	2512.5	MMBtu/hr	firing NG without duct burner		880.0	lb/MW-hr							